

Figure 1A



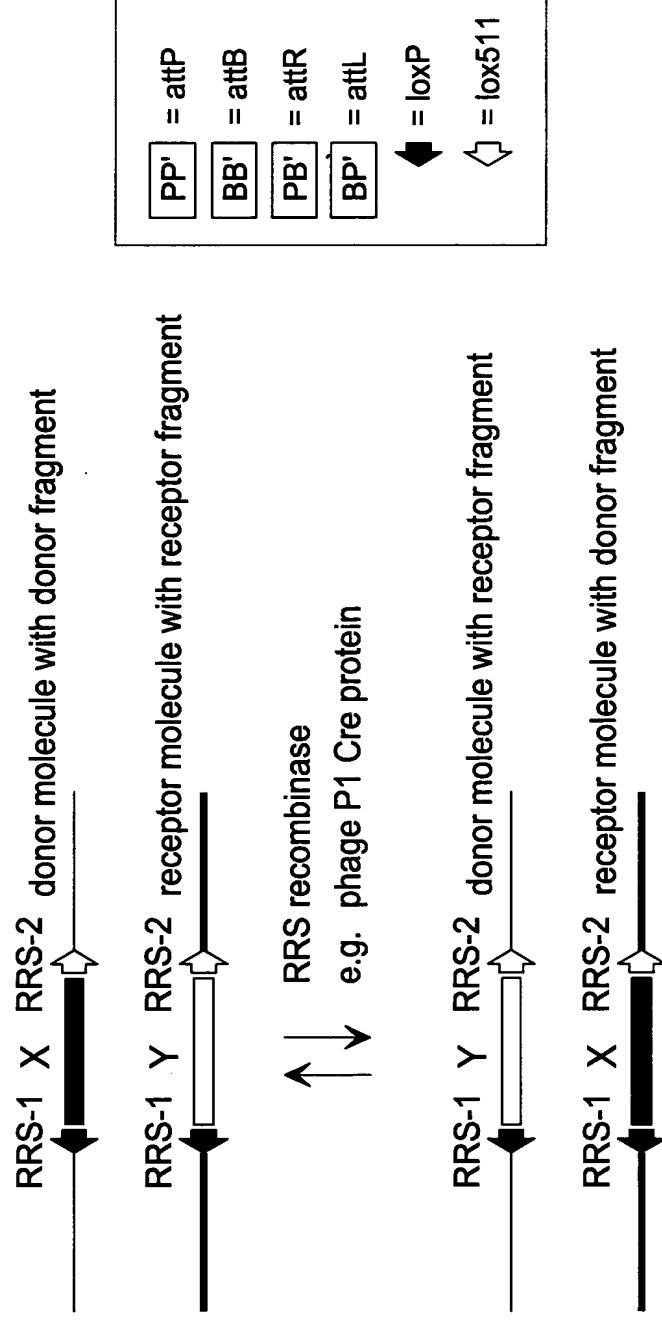


Figure 1B

Figure 2A

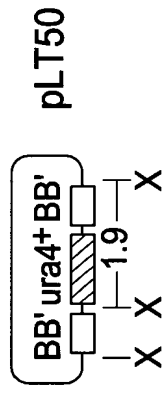


Figure 2B

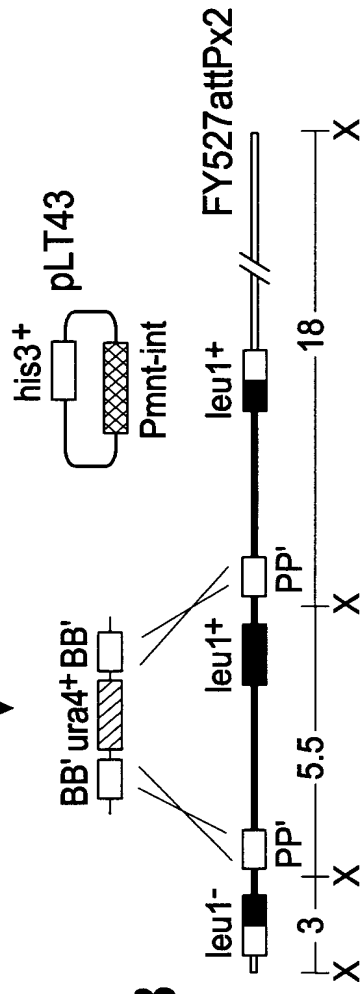


Figure 2C

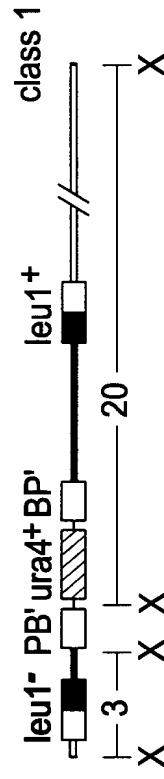


Figure 2D

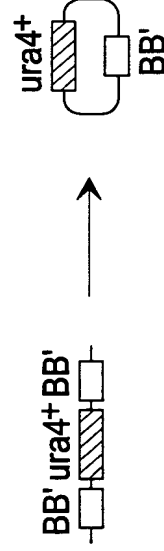


Figure 2E

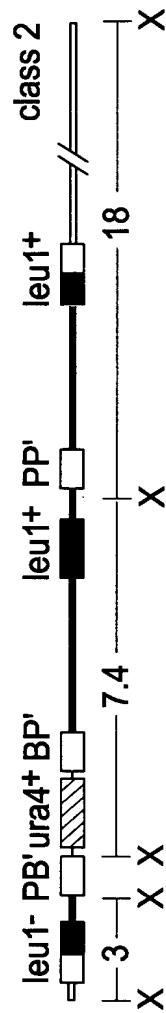


Figure 2F

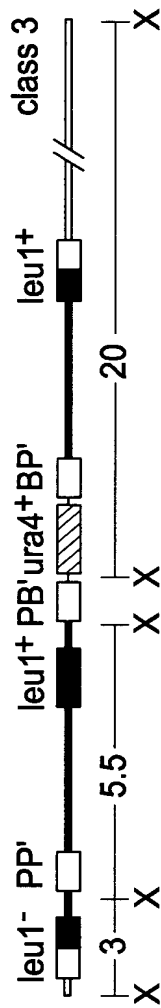
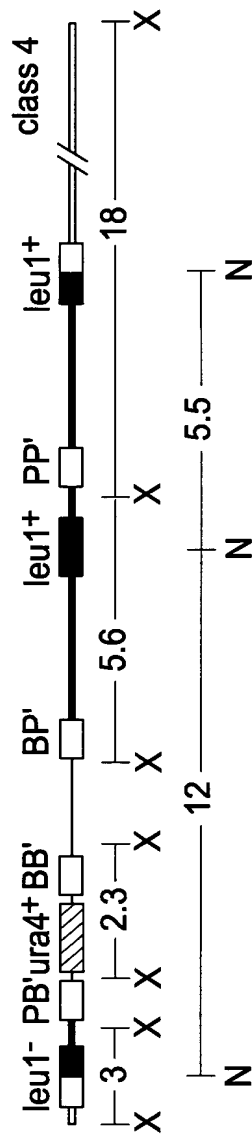


Figure 2G



5/44

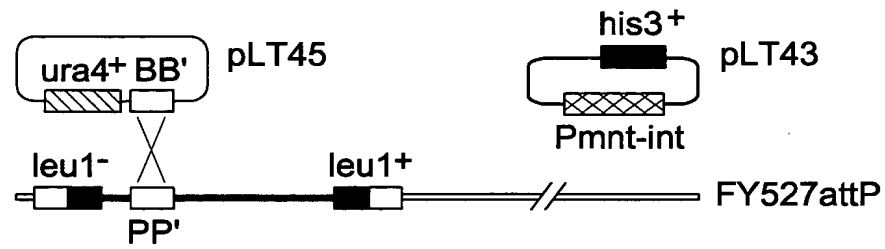


Figure 3A

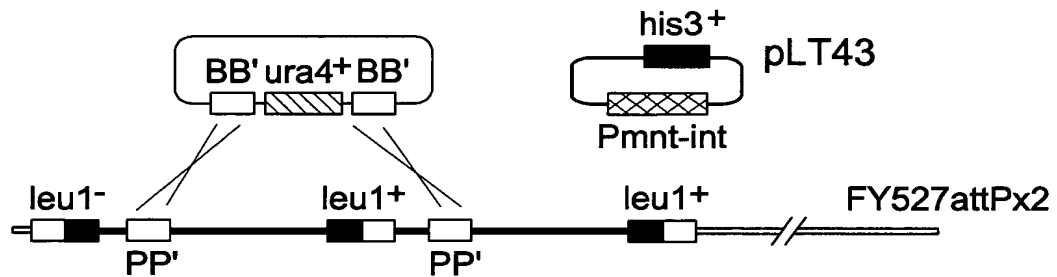


Figure 3B

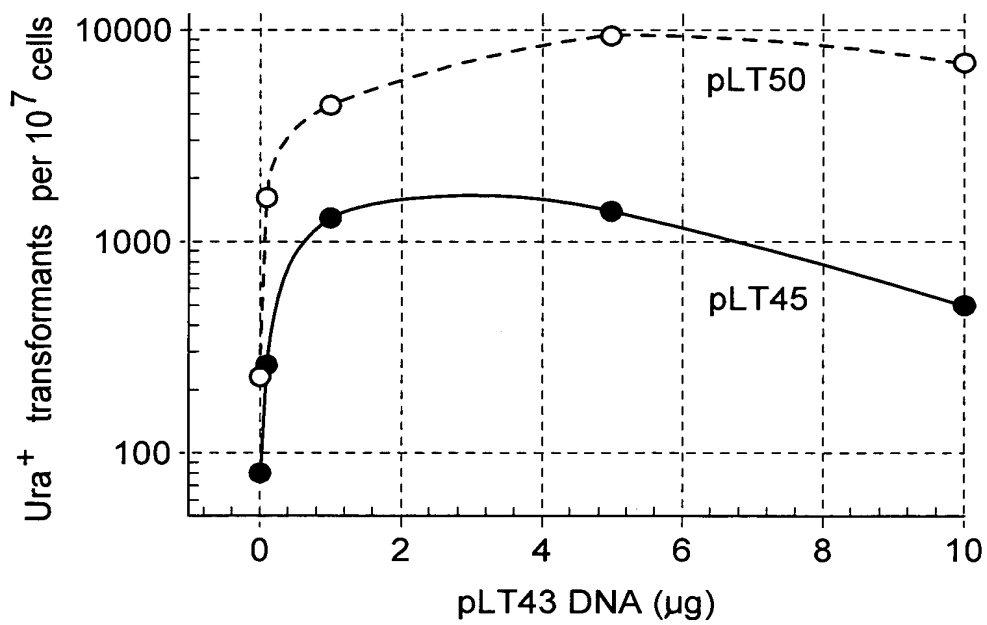


Figure 3C

Pc = human cytomegalovirus promoter
 Ps = SV40 early promoter
 zeo = zeocin resistance coding region
 tk = thymidine kinase coding region
 int = integrase coding region

PP' = attP
 BB' = attB
 PB' = attR
 BP' = attL

cDNA integration in mammalian cells
transient expression of int

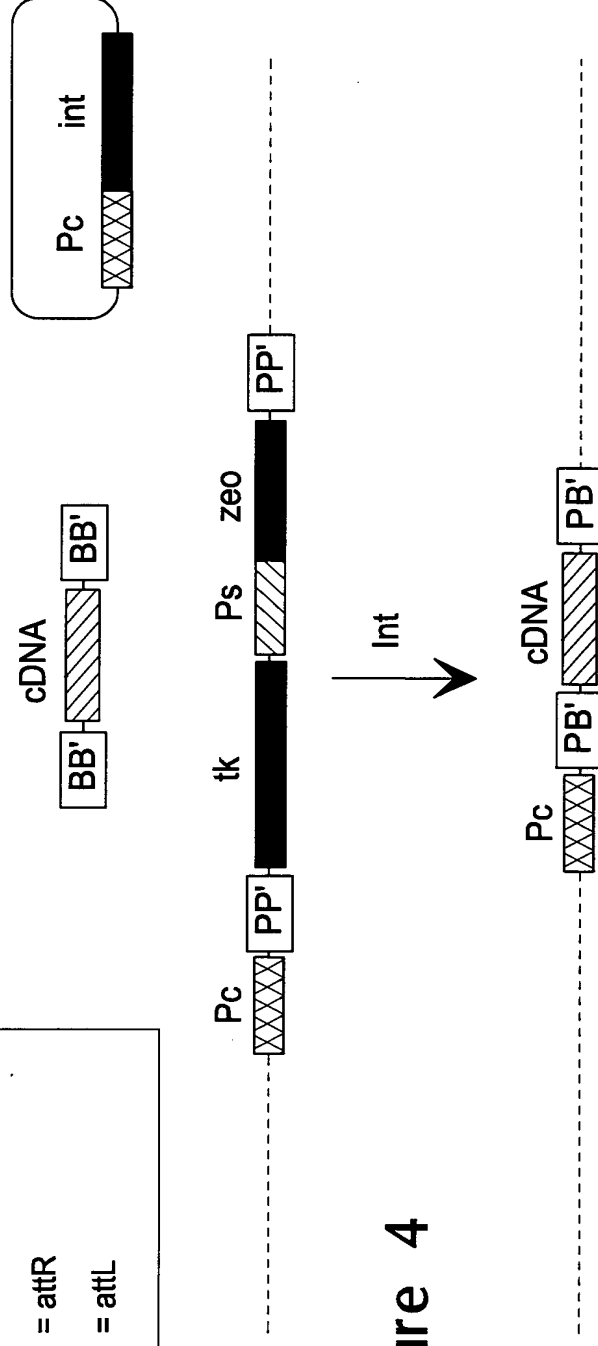


Figure 4

Pc = human cytomegalovirus promoter
 Ps = SV40 early promoter
 zeo = zeocin resistance coding region
 tk = thymidine kinase coding region

PP' = attP
 BB' = attB
 PB' = attR
 BP' = attL

Strategy for cDNA integration in mammalian cells

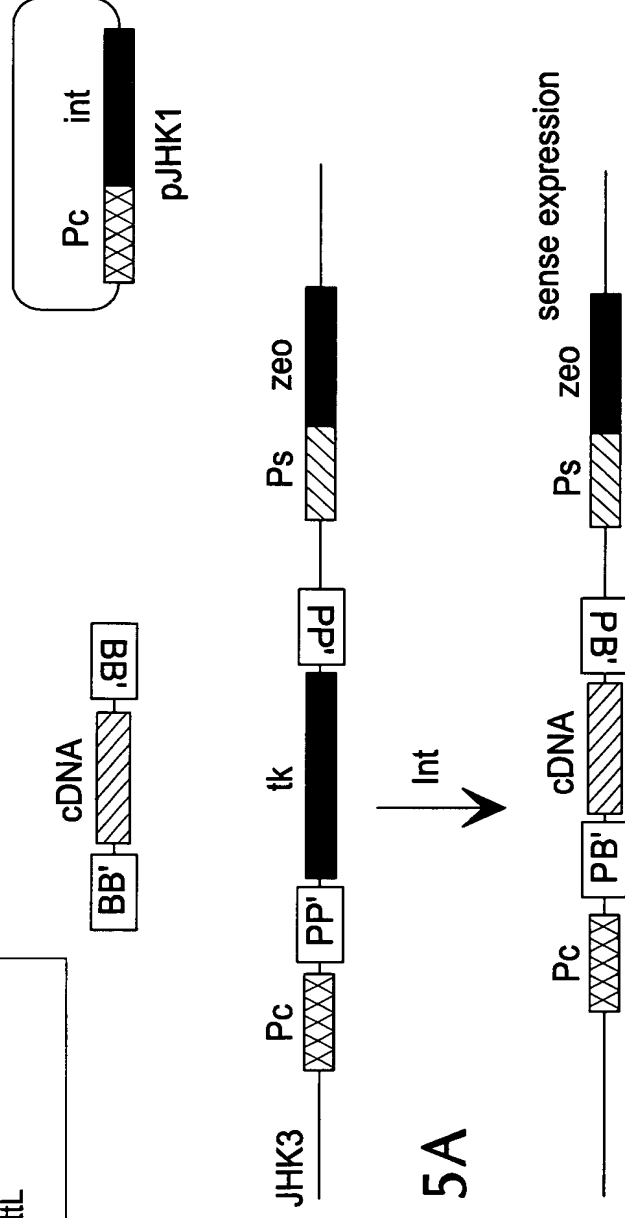


Figure 5A

Pc = human cytomegalovirus promoter
 Ps = SV40 early promoter
 zeo = zeocin resistance coding region
 tk = thymidine kinase coding region

PP' = attP
BB' = attB
PB' = attR
BP' = attL

Strategy for cDNA integration in mammalian cells

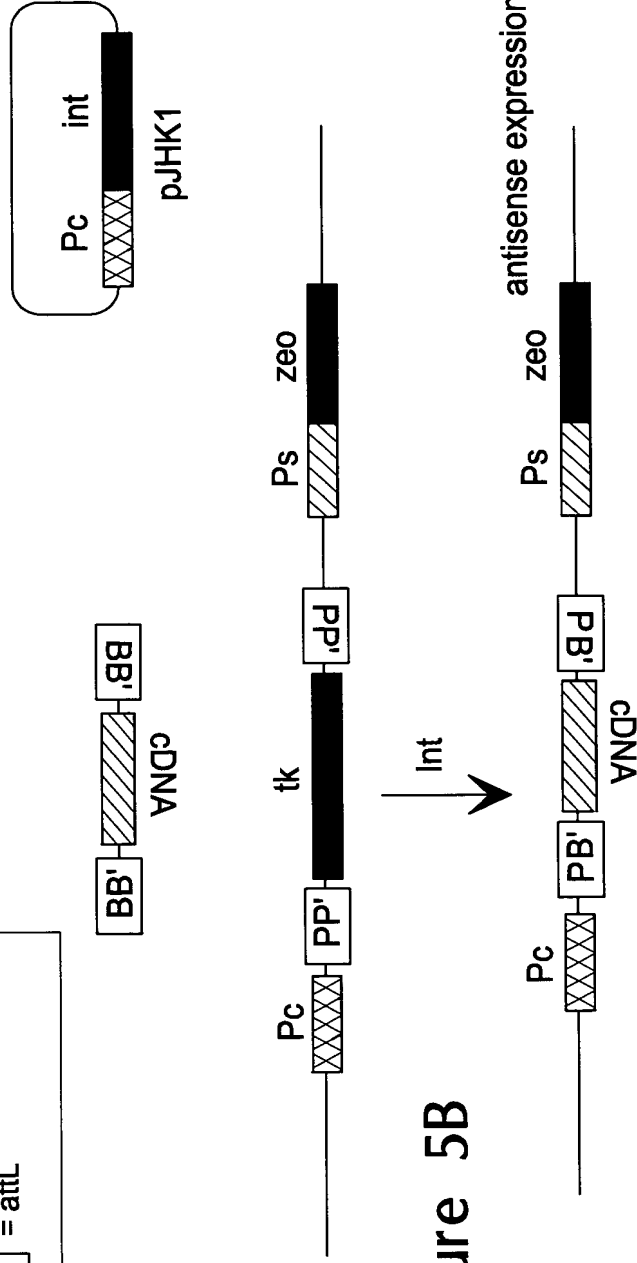
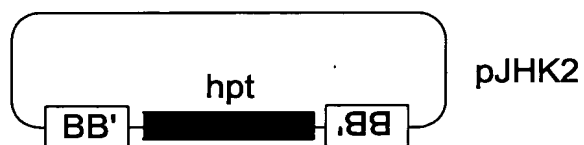


Figure 5B

9/44

Strategy for cDNA integration in mammalian cells



Pc = human cytomegalovirus promoter

Ps = SV40 early promoter

zeo = zeocin resistance coding region

tk = thymidine kinase coding region

PP' = attP

BB' = attB

PB' = attR

BP' = attL

Figure 5C

10/44

Strategy for cDNA integration in mammalian cells

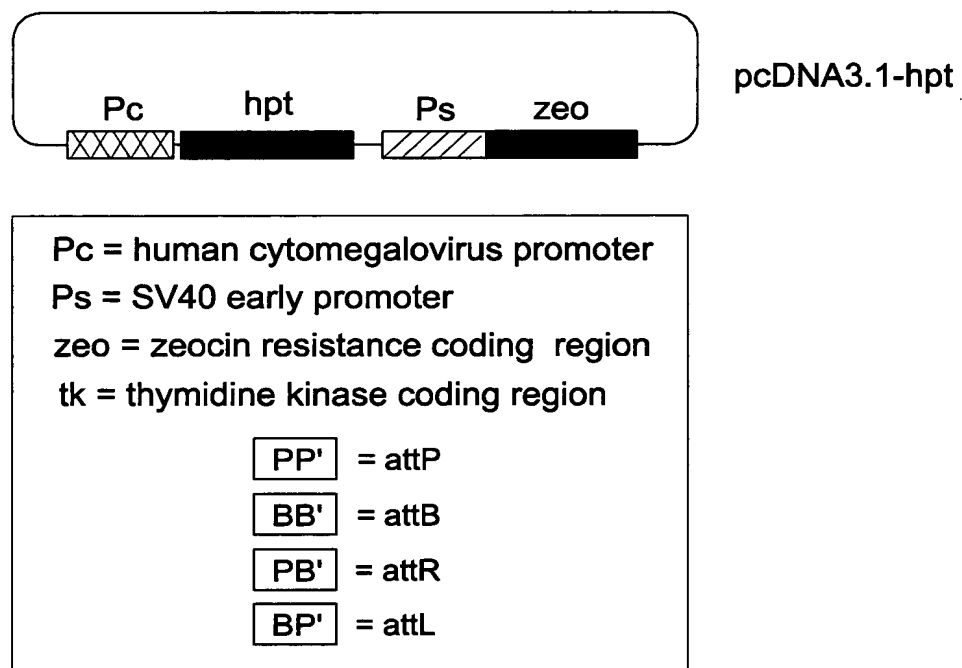


Figure 5D

11/44

Pc = human cytomegalovirus promoter
 Ps = SV40 early promoter
 zeo = zeocin resistance coding region
 tk = thymidine kinase coding region

PP' = attP
 BB' = attB
 PB' = attR
 BP' = attL

Single copy target construct in human cells

probe

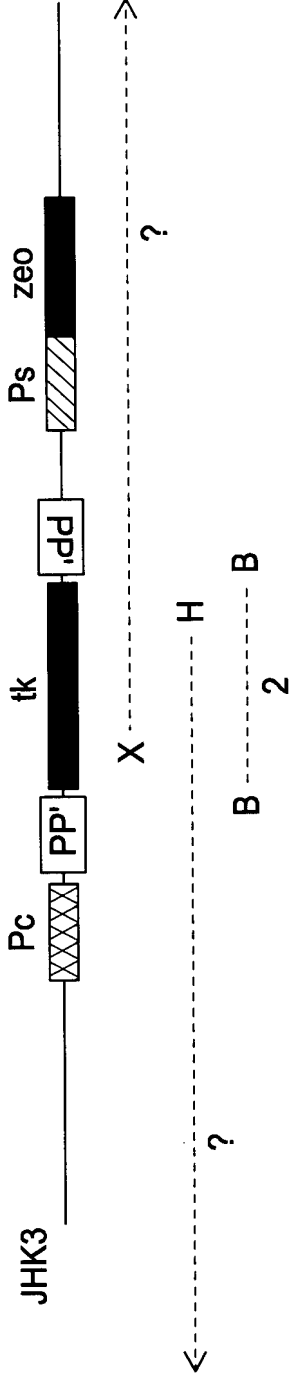


Figure 5E

12/44

Pc = human cytomegalovirus promoter
 Ps = SV40 early promoter
 zeo = zeocin resistance coding region
 tk = thymidine kinase coding region

PP' = attP
 BB' = attB
 PB' = attR
 BP' = attL

PCR detection of DNA exchange

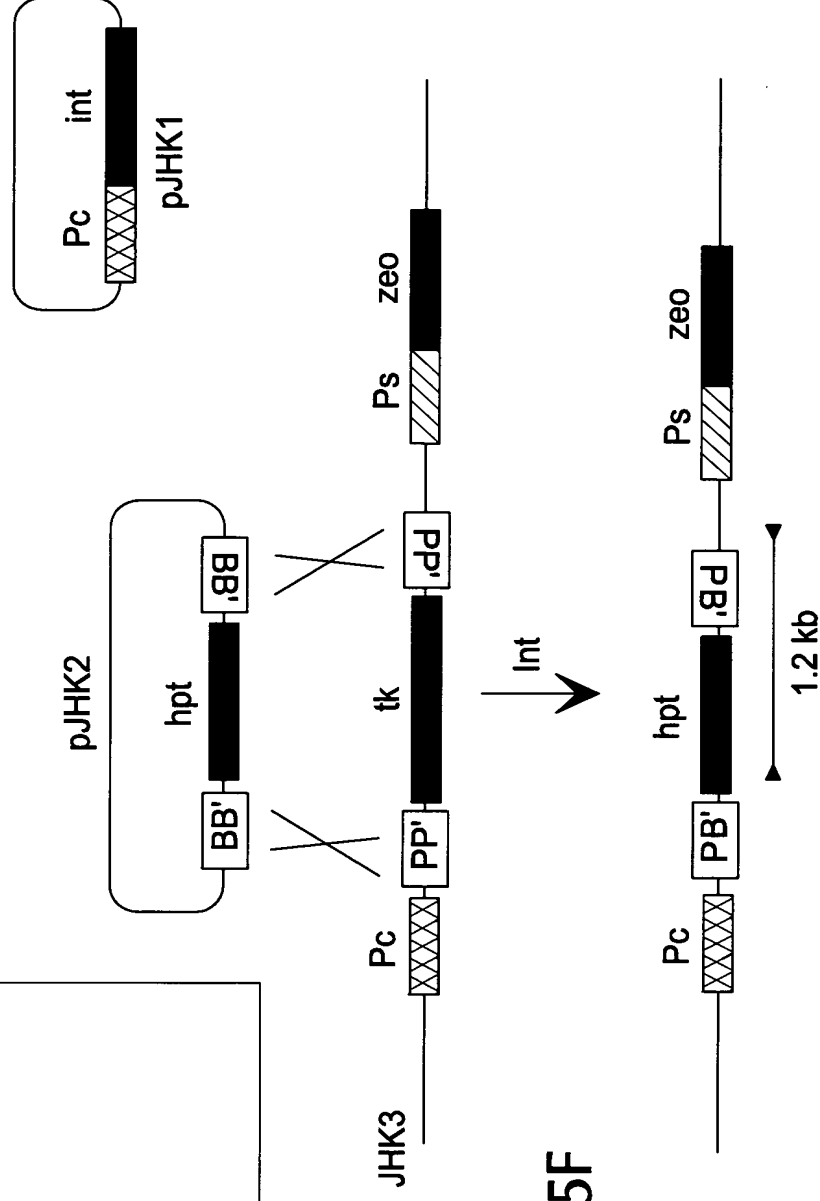


Figure 5F

P = promoter

35S = CaMV 35S promoter

npt = kanamycin resistance coding region

codA = cytosine deaminase coding region

int = integrase coding region

PP' = attP

BB' = attB

PB' = attR

BP' = attL

cDNA integration in plant cells
int expressed from target site

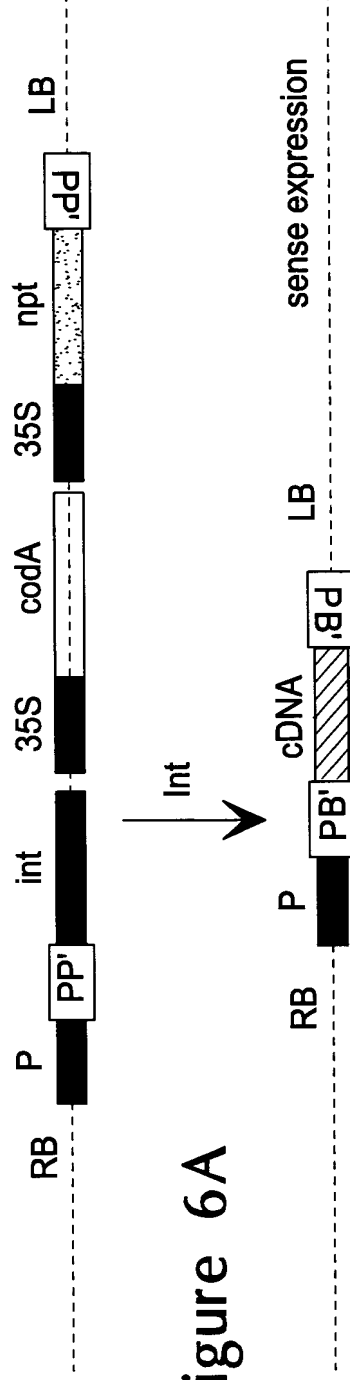
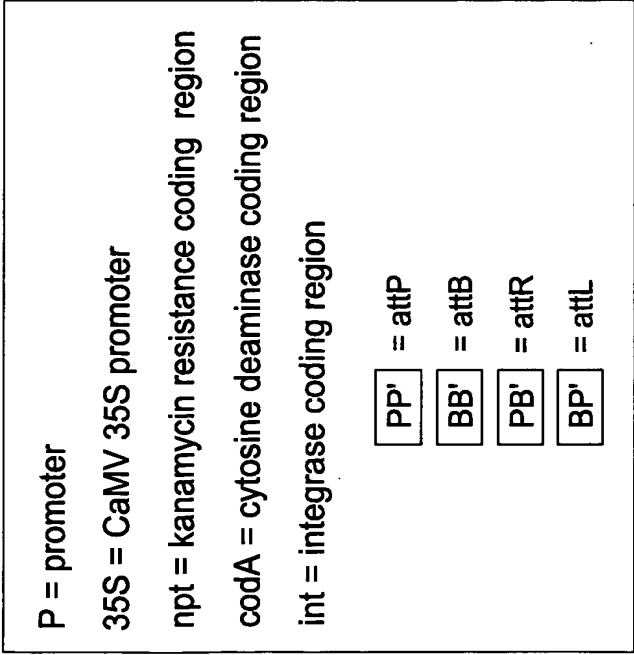


Figure 6A



cDNA integration in plant cells
int expressed from target site

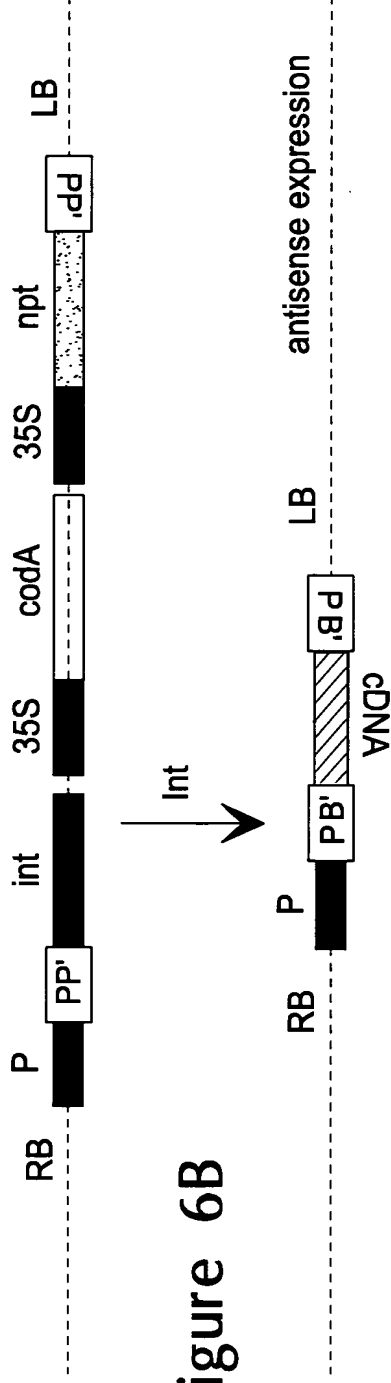
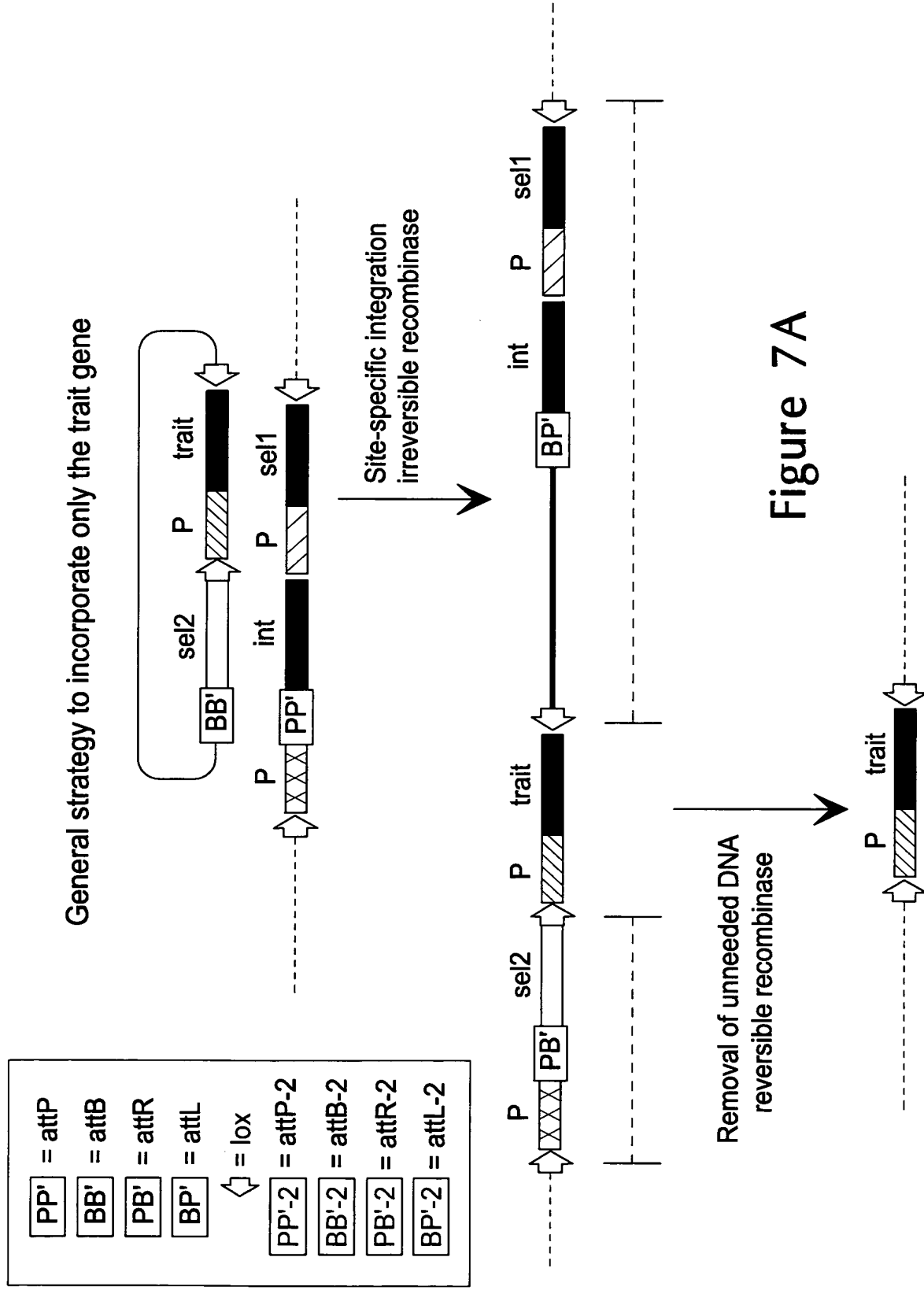


Figure 6B



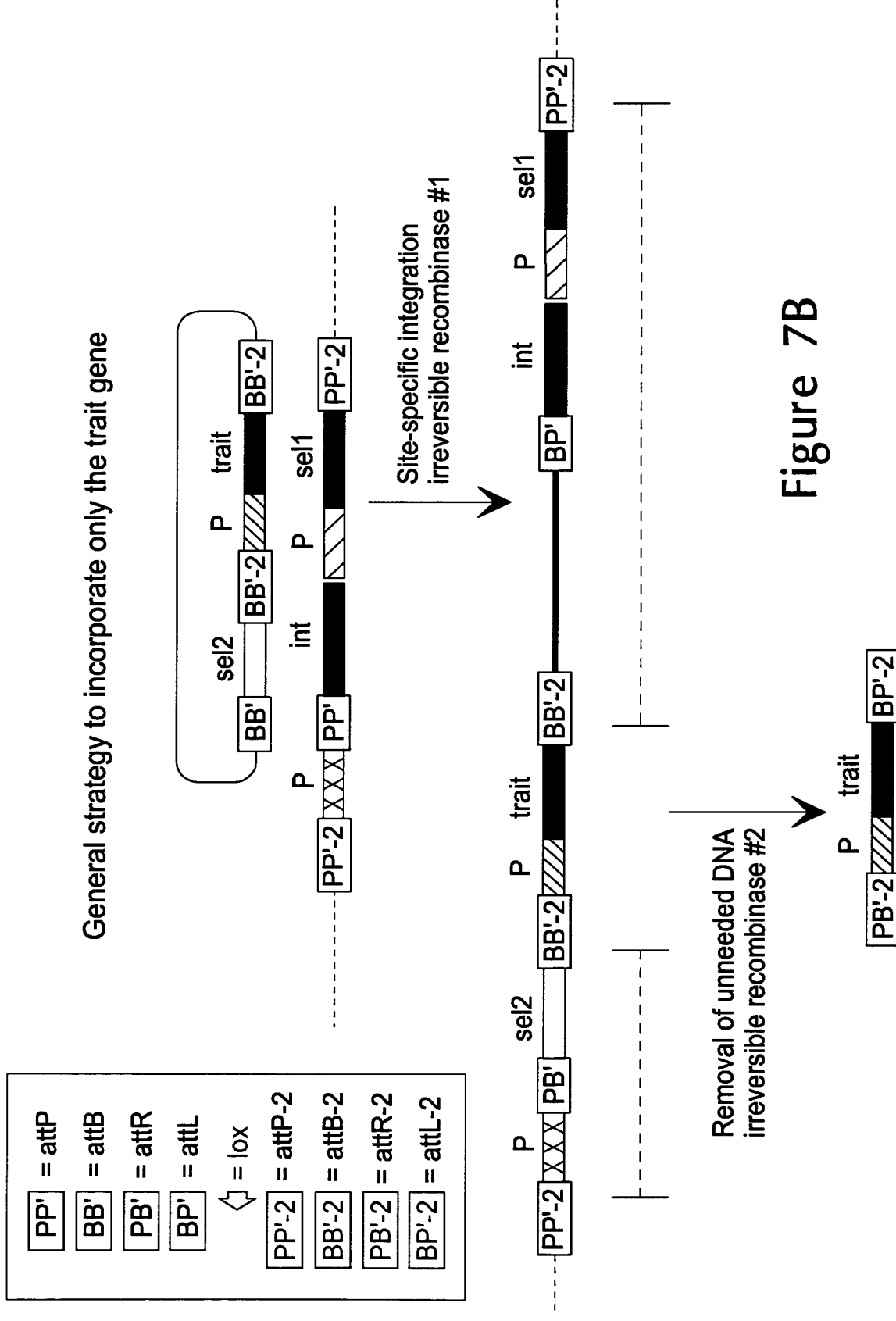


Figure 7B

General strategy to stack genes, part1
Use of directly oriented sites

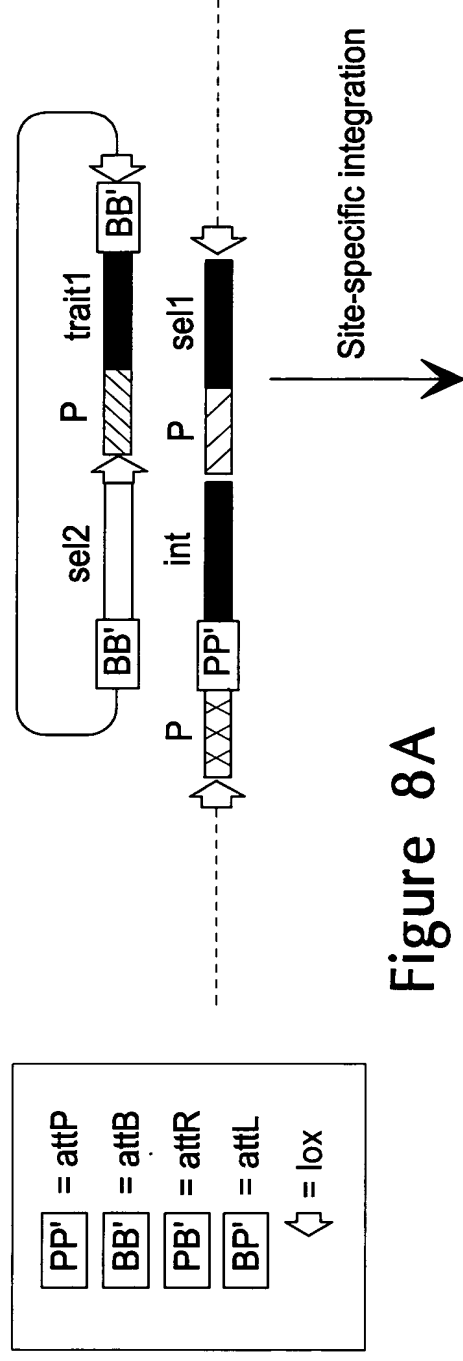


Figure 8A

General strategy to stack genes, part1
Use of directly oriented sites

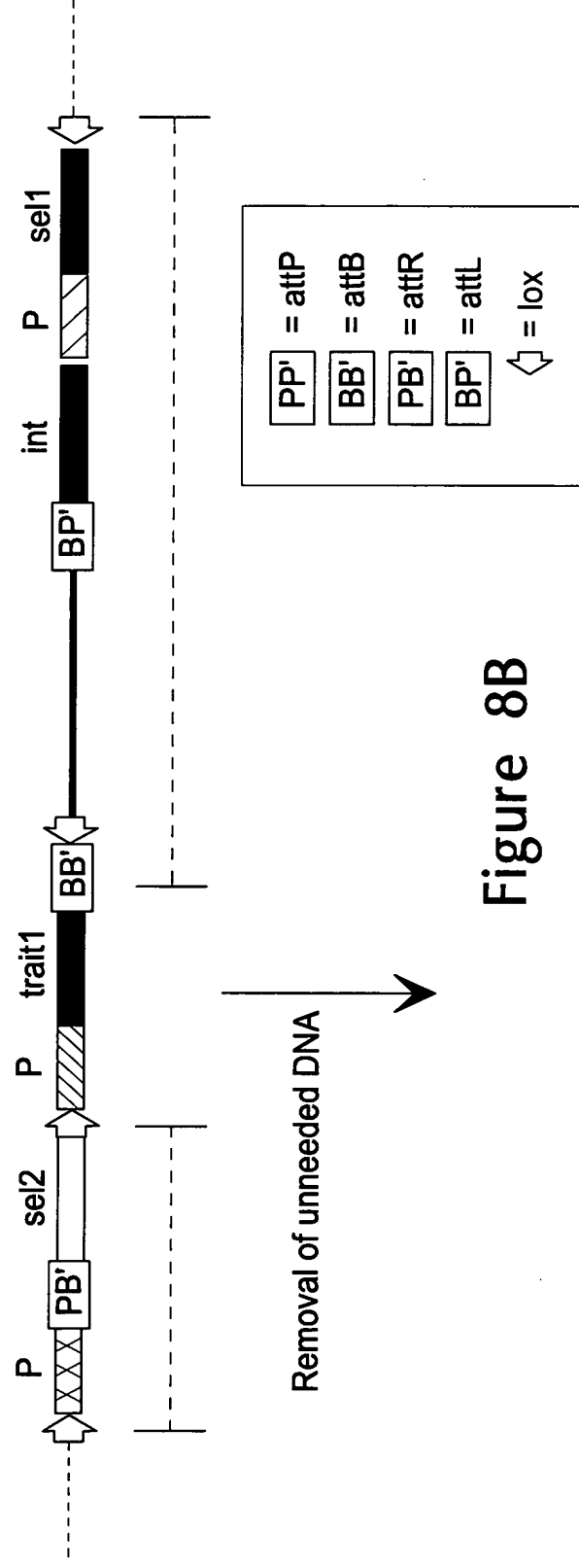


Figure 8B

General strategy to stack genes, part1
Use of directly oriented sites

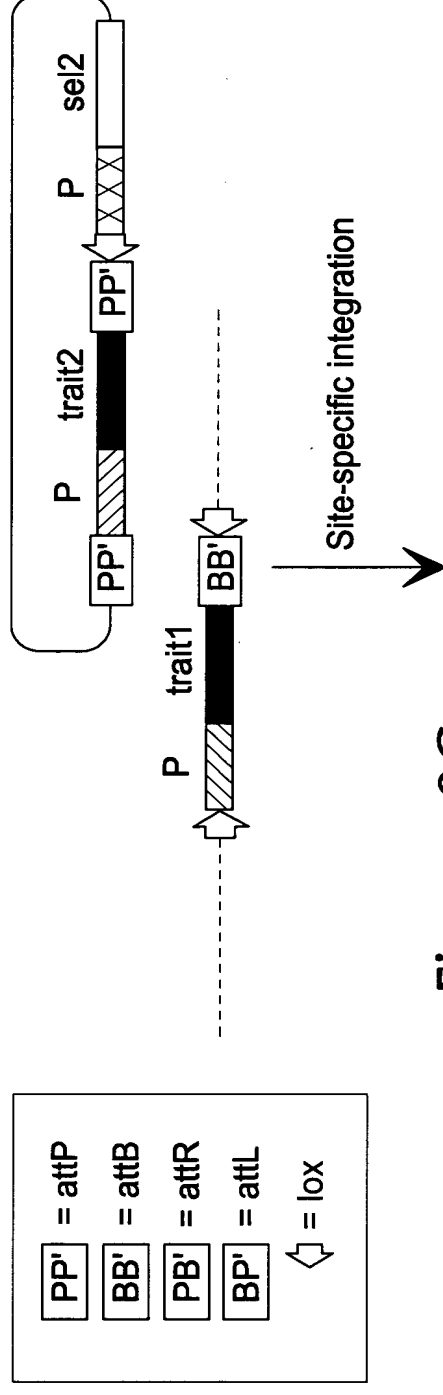


Figure 8C

General strategy to stack genes, part1
Use of directly oriented sites

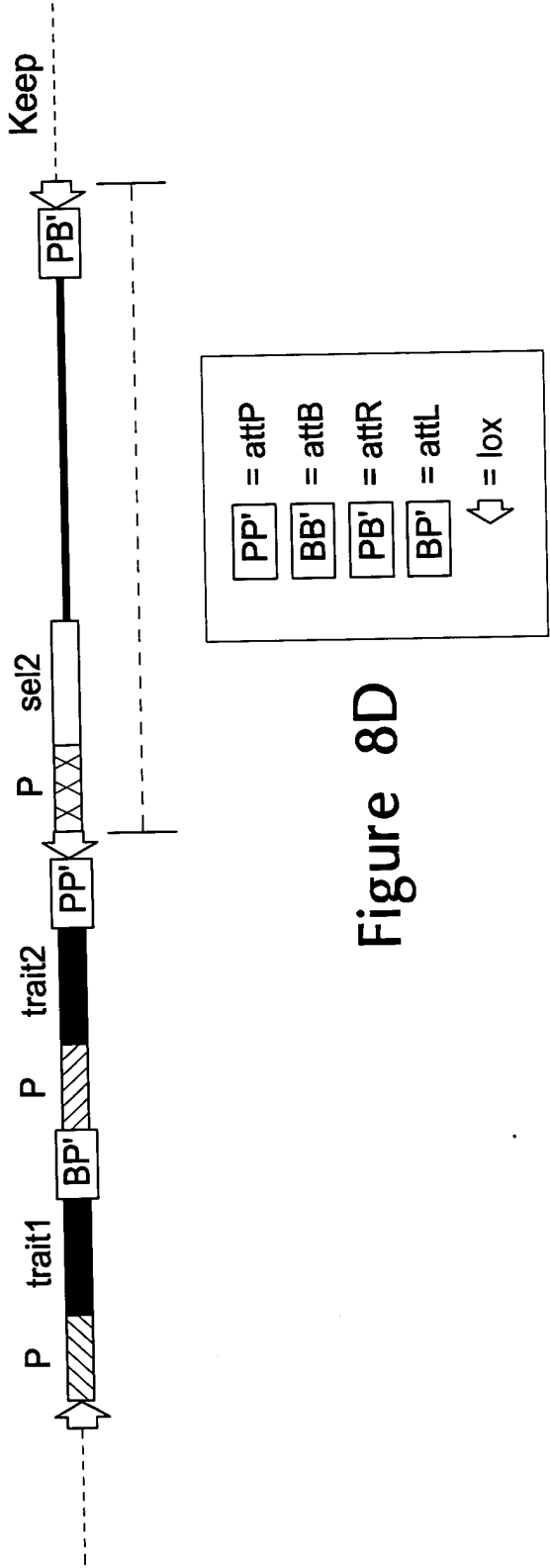


Figure 8D

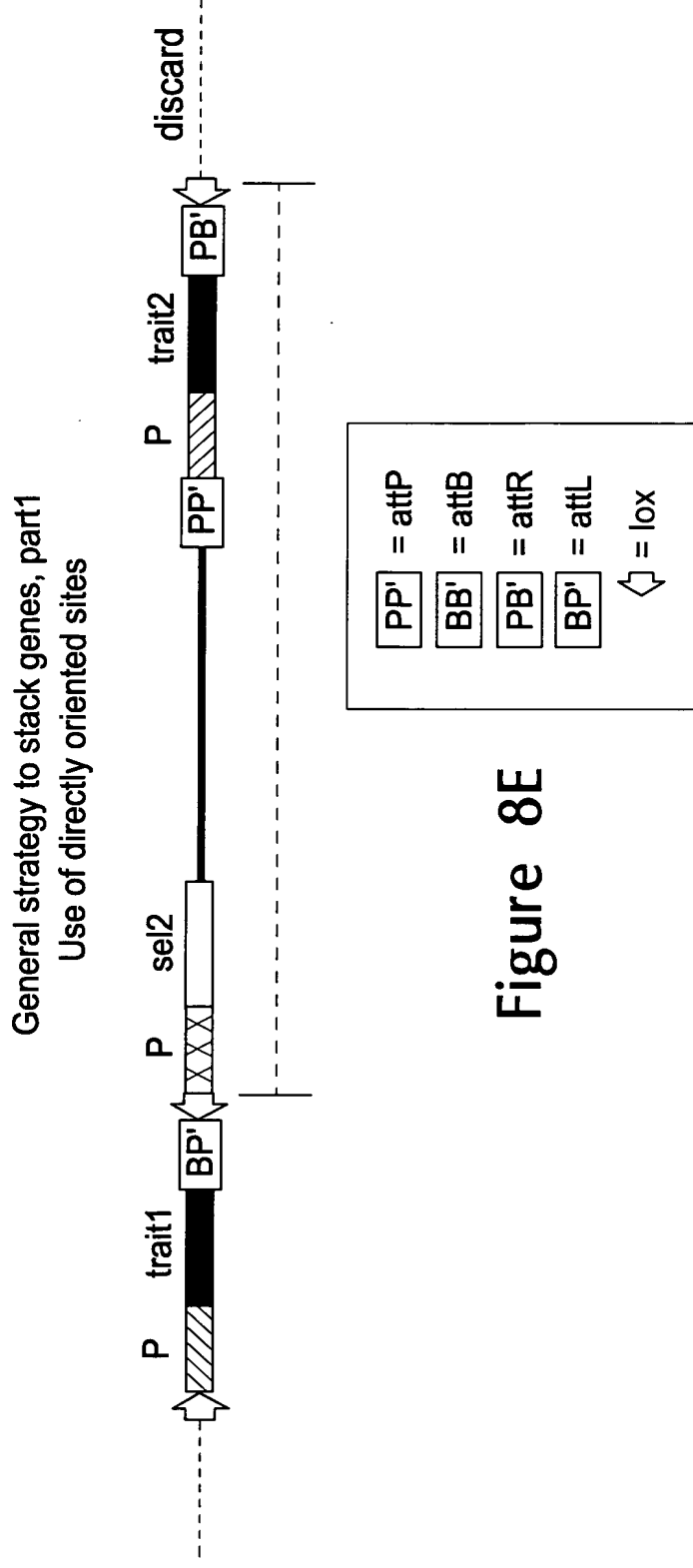


Figure 8E

General strategy to stack genes, part2
Use of directly oriented sites

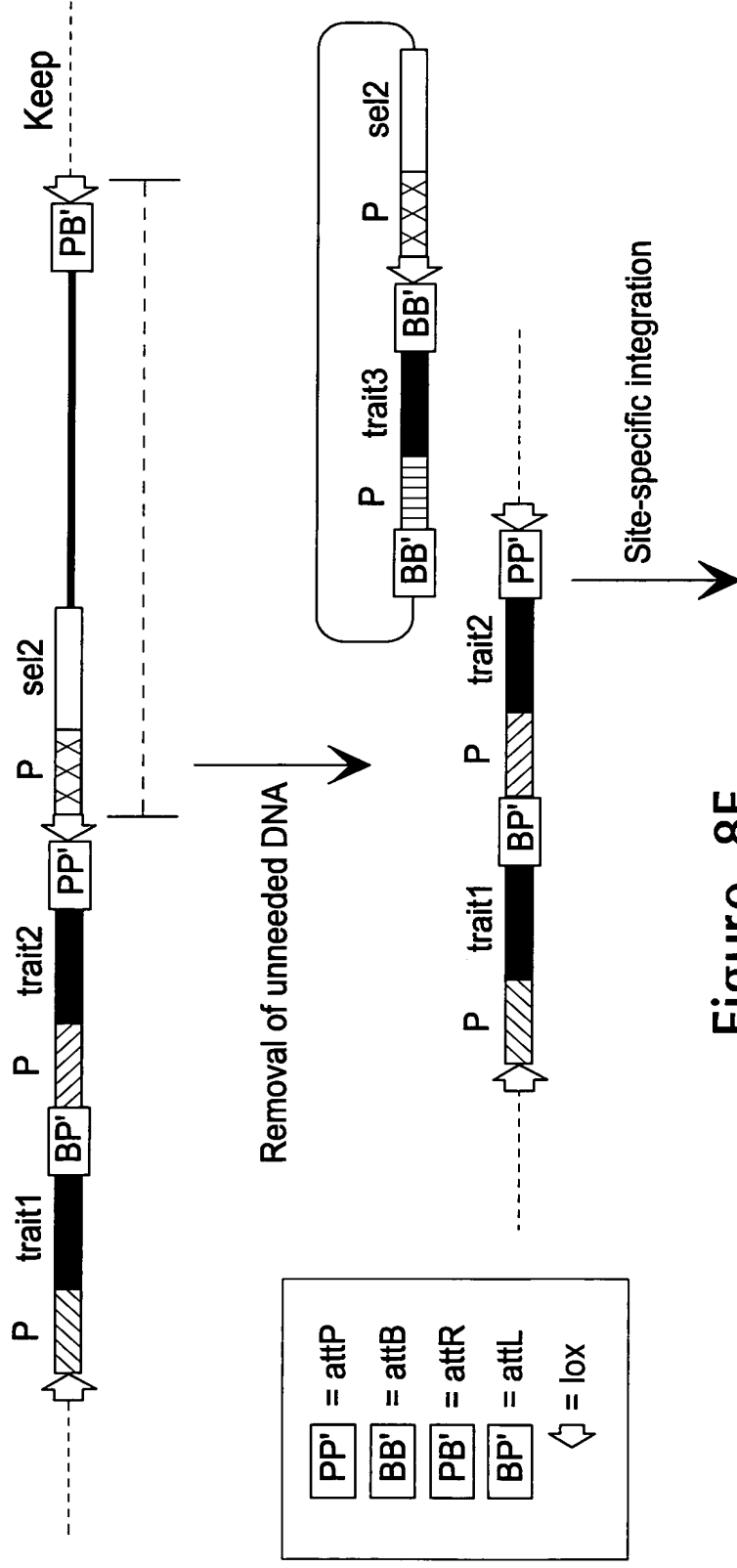


Figure 8F

General strategy to stack genes, part2
Use of directly oriented sites

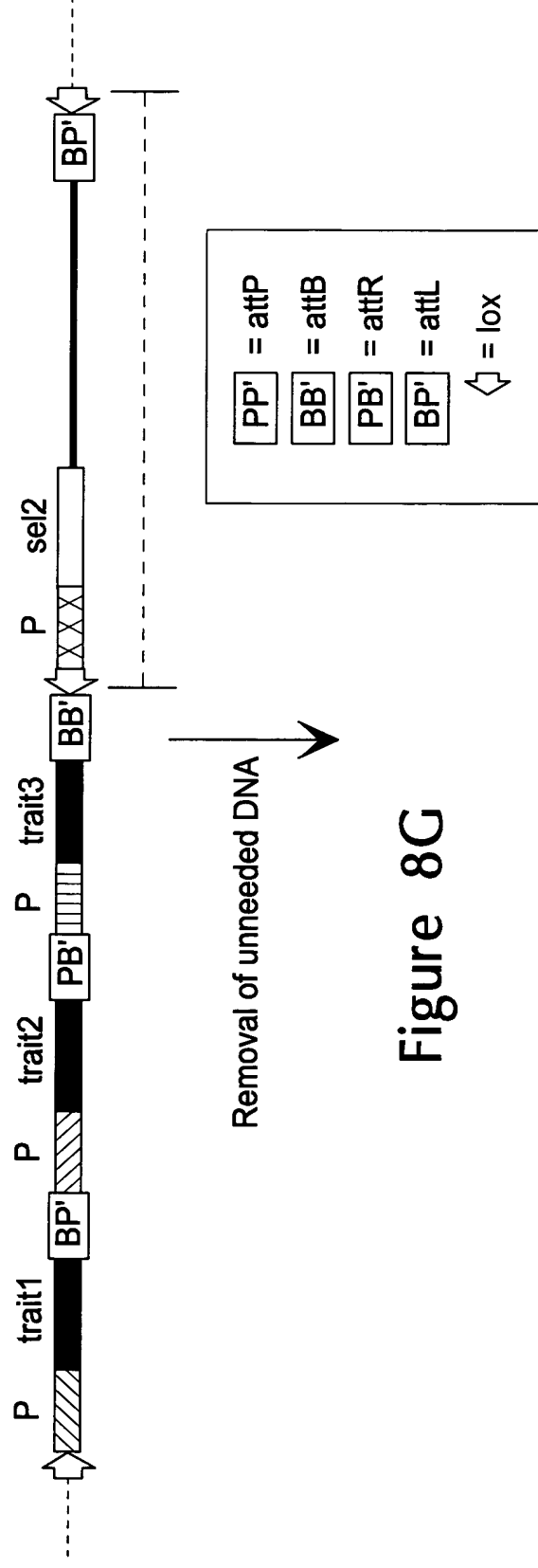


Figure 8G

General strategy to stack genes, part2
Use of directly oriented sites

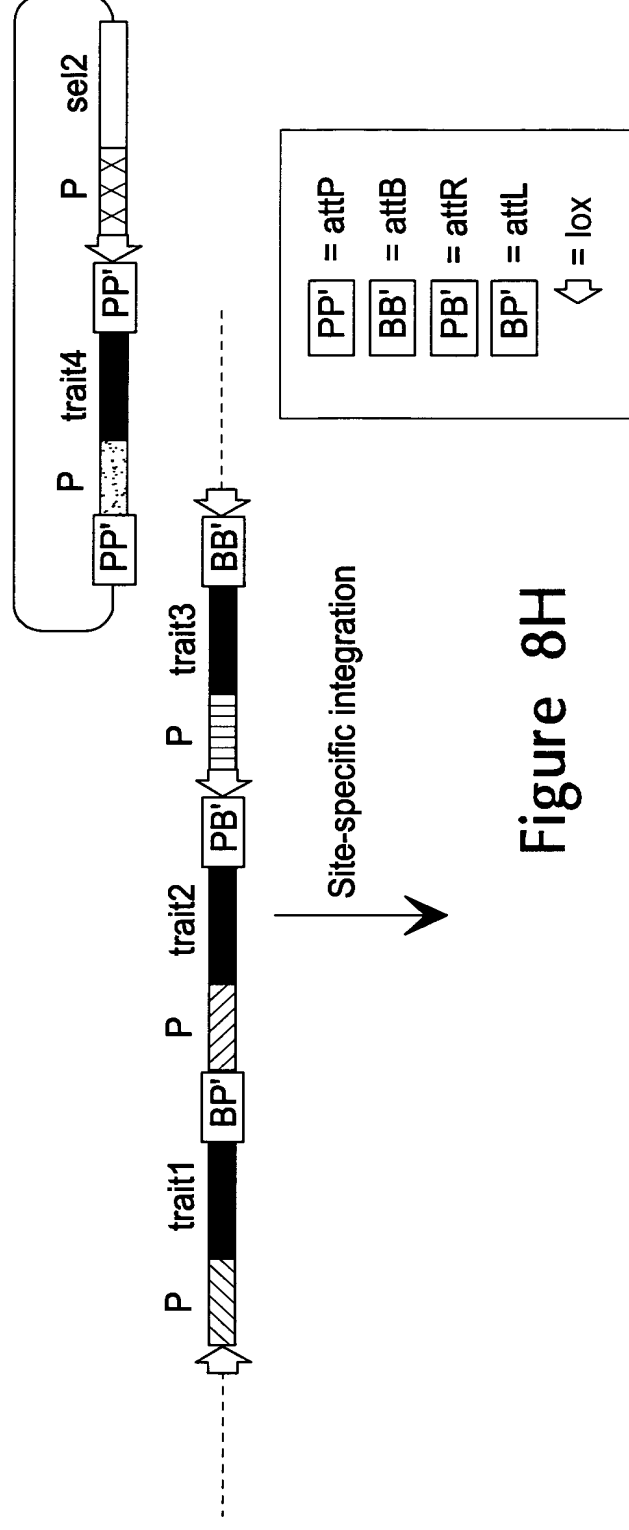


Figure 8H

General strategy to stack genes, part2
Use of directly oriented sites

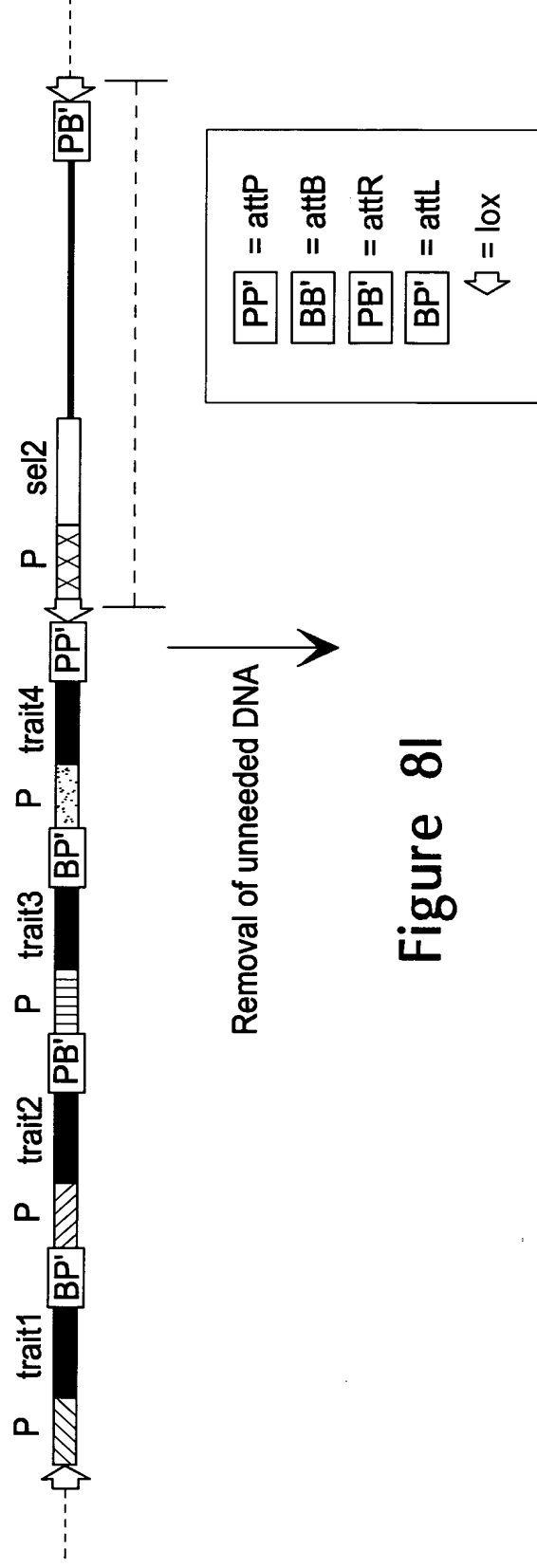


Figure 8I

General strategy to stack genes, part2
Use of directly oriented sites

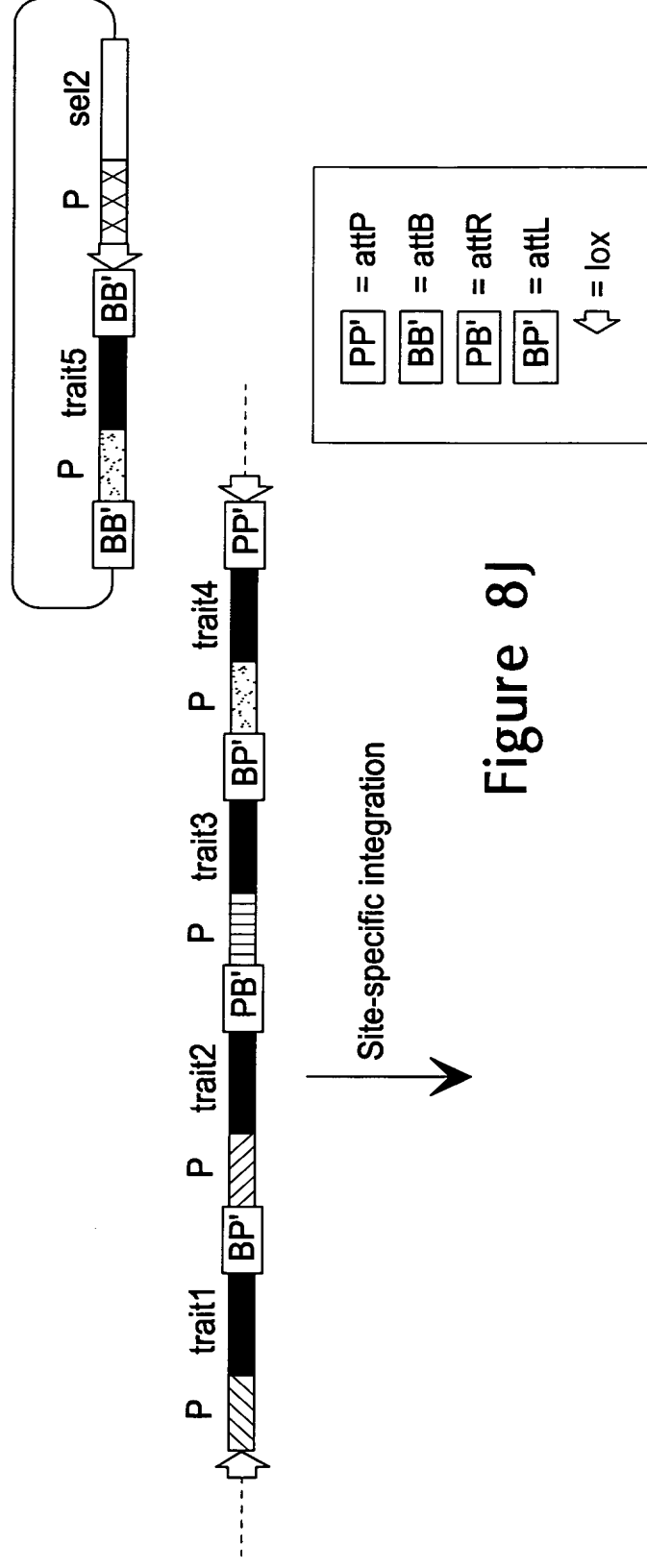


Figure 8J

General strategy to stack genes, part1
Use of inverted sites

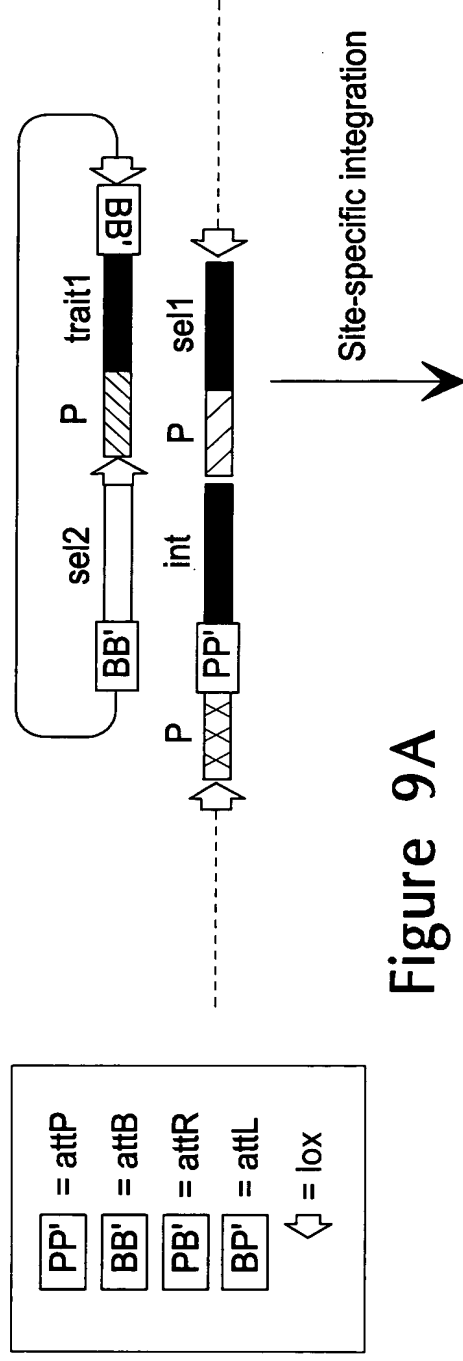


Figure 9A

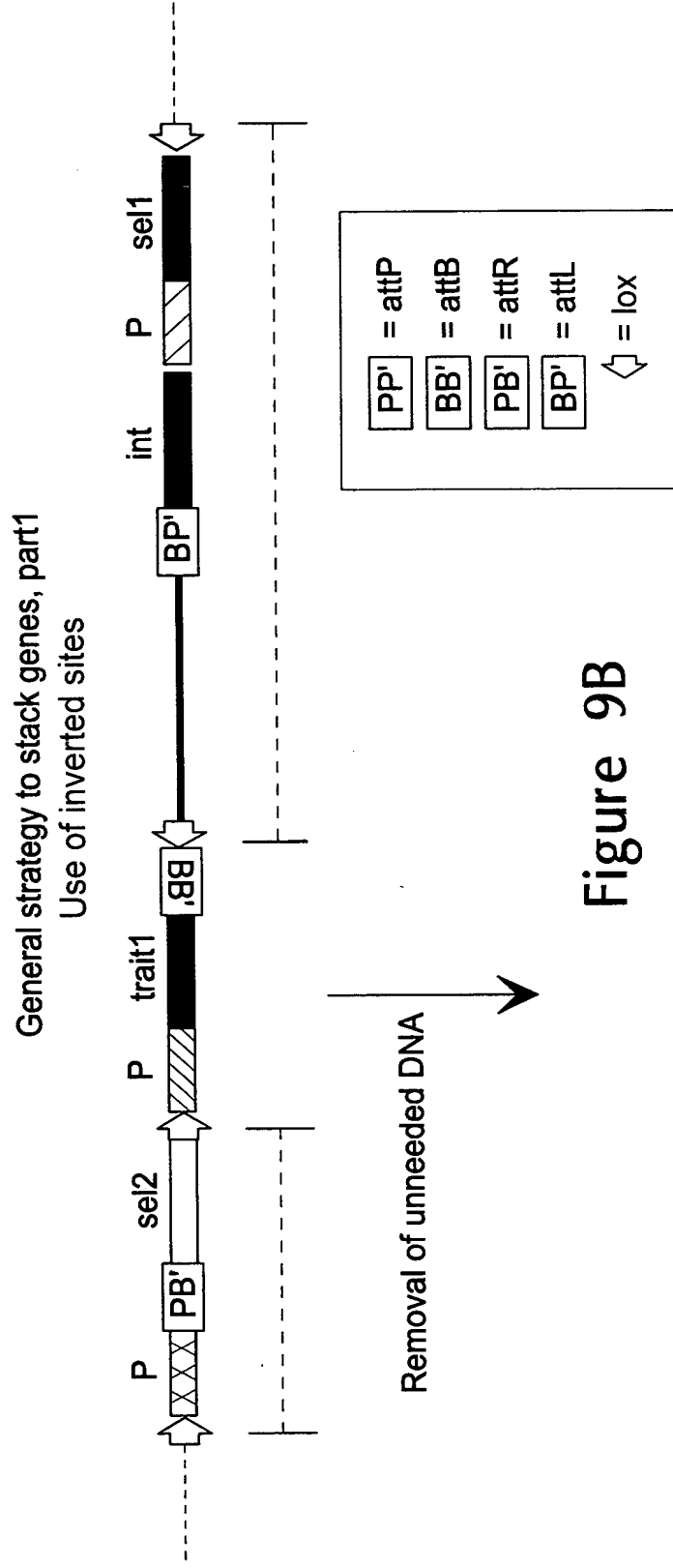


Figure 9B

General strategy to stack genes, part1
Use of inverted sites

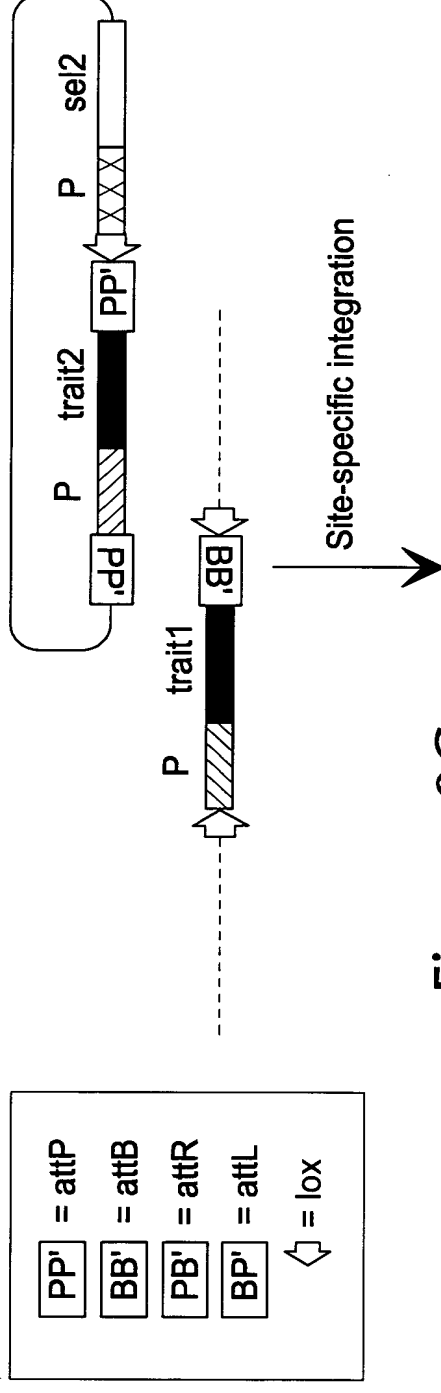


Figure 9C

General strategy to stack genes, part1
Use of inverted sites

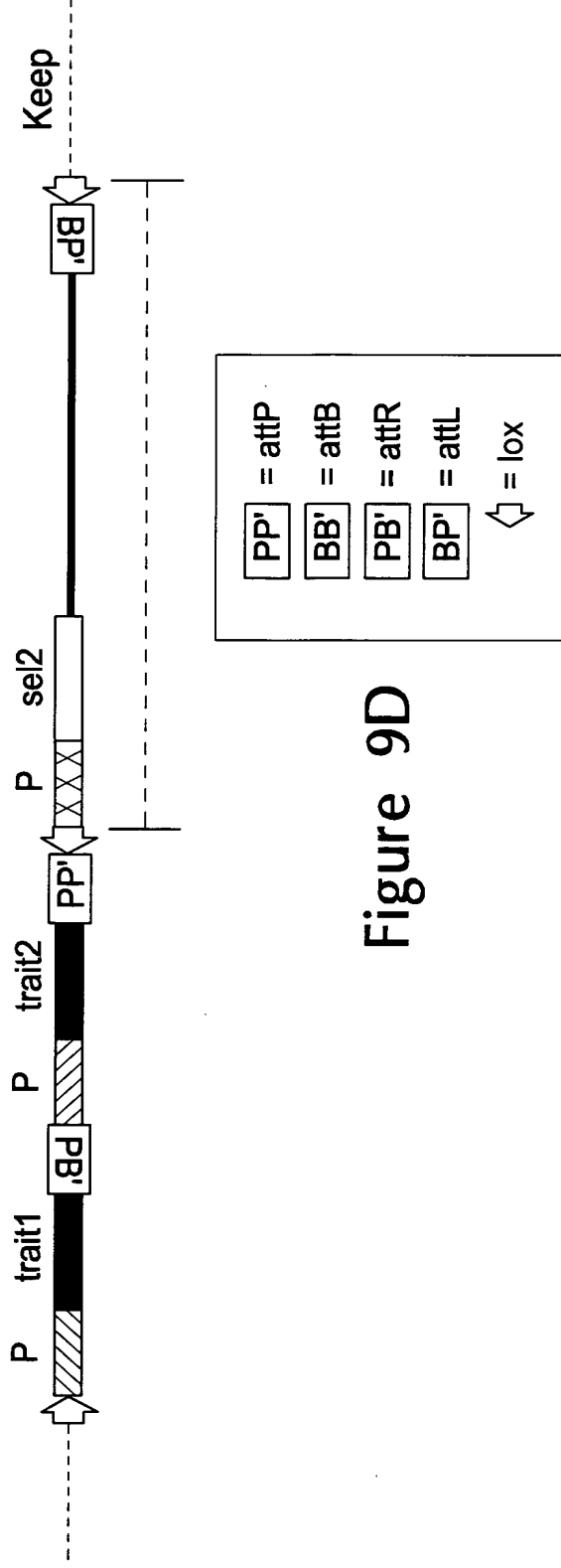


Figure 9D

General strategy to stack genes, part1
Use of inverted sites

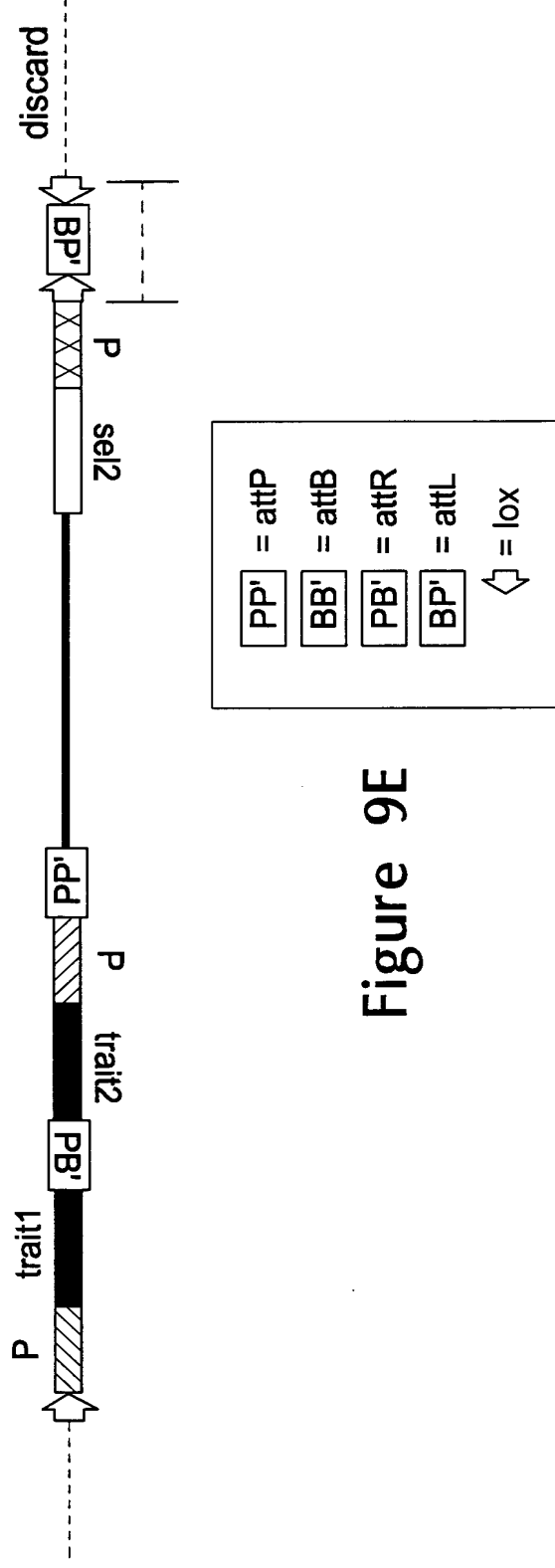


Figure 9E

General strategy to stack genes, part2 Use of inverted sites

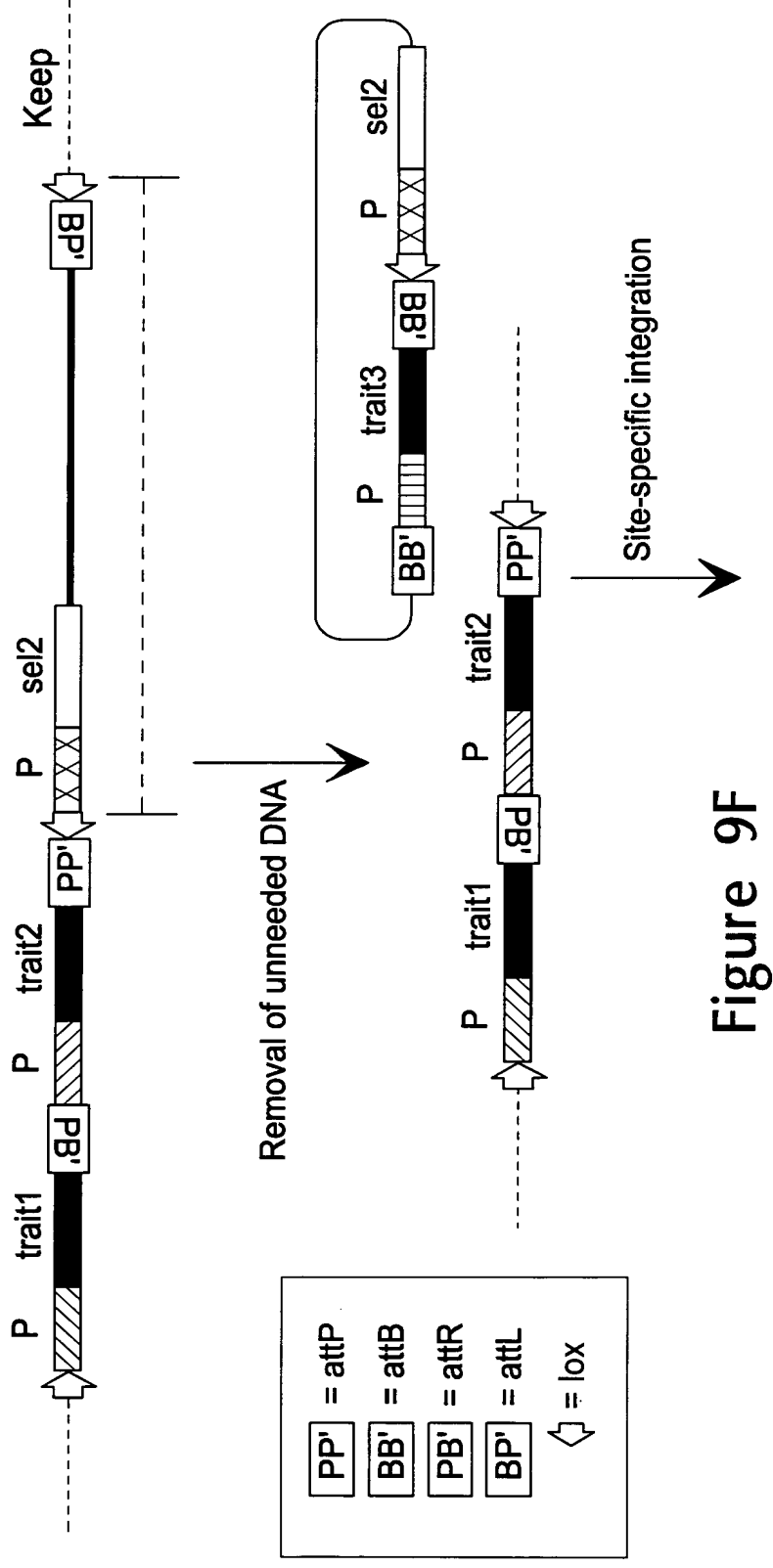


Figure 9F

General strategy to stack genes, part2 Use of inverted sites

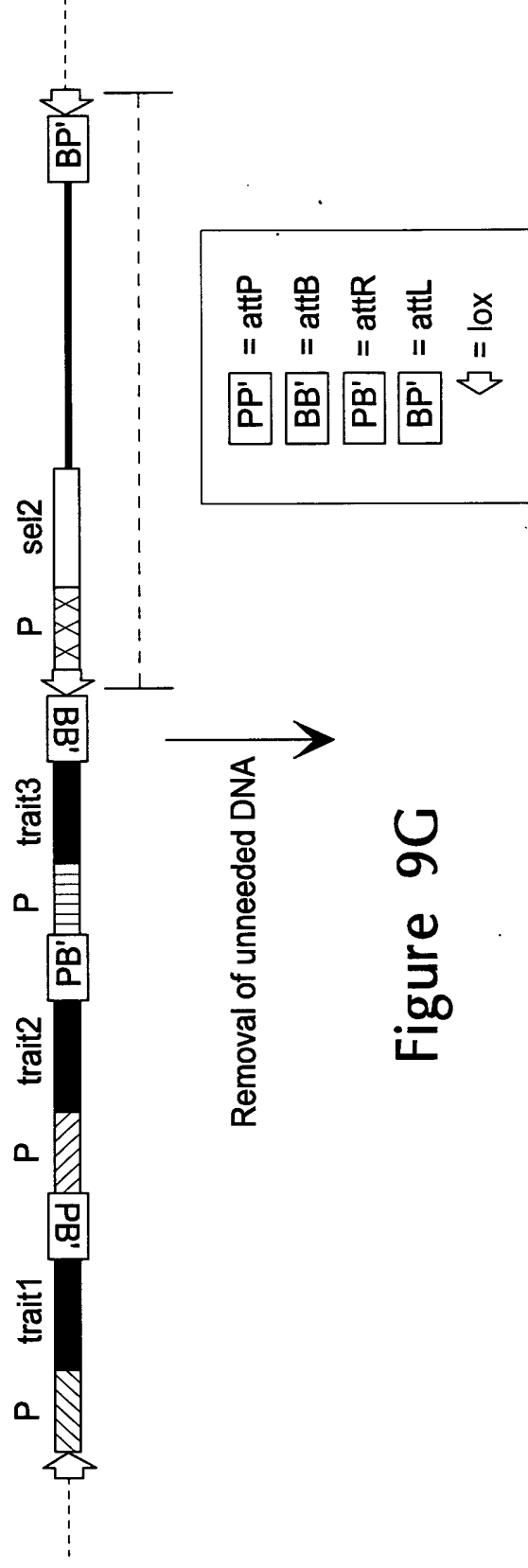


Figure 9G

General strategy to stack genes, part2

Use of inverted sites

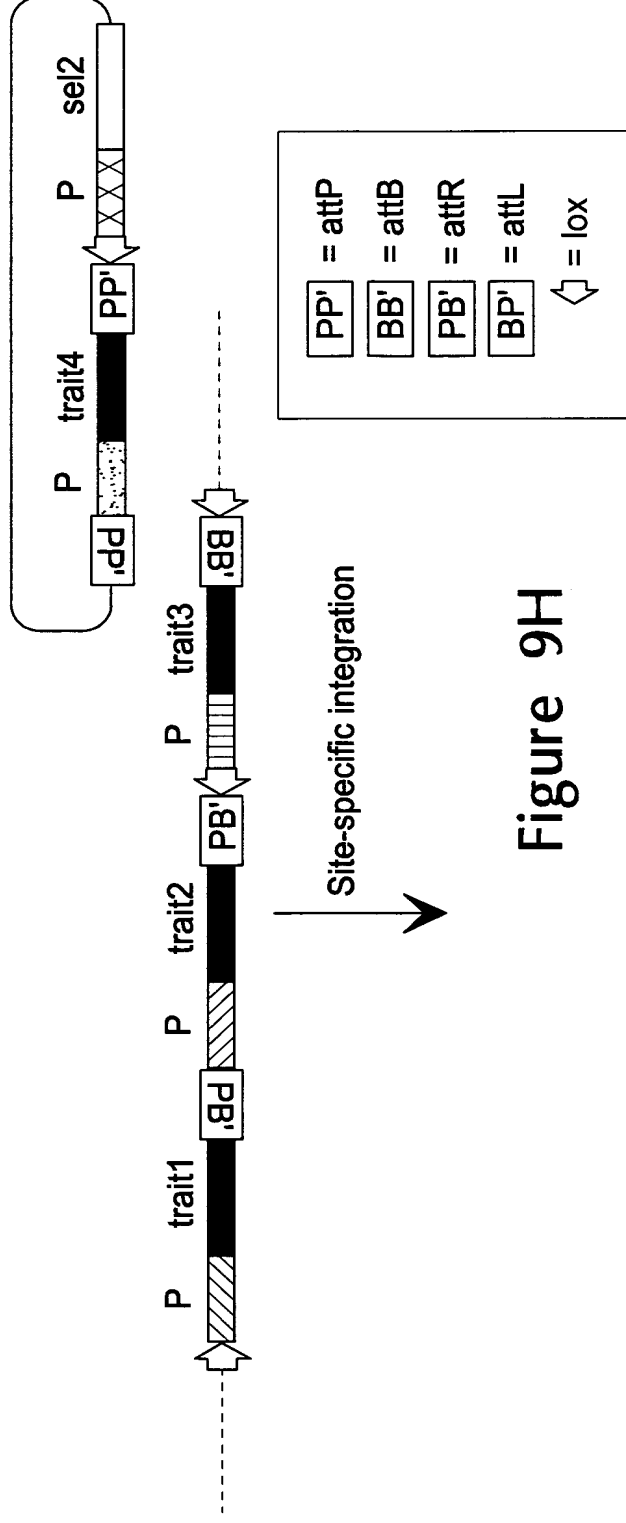


Figure 9H

General strategy to stack genes, part2 Use of inverted sites

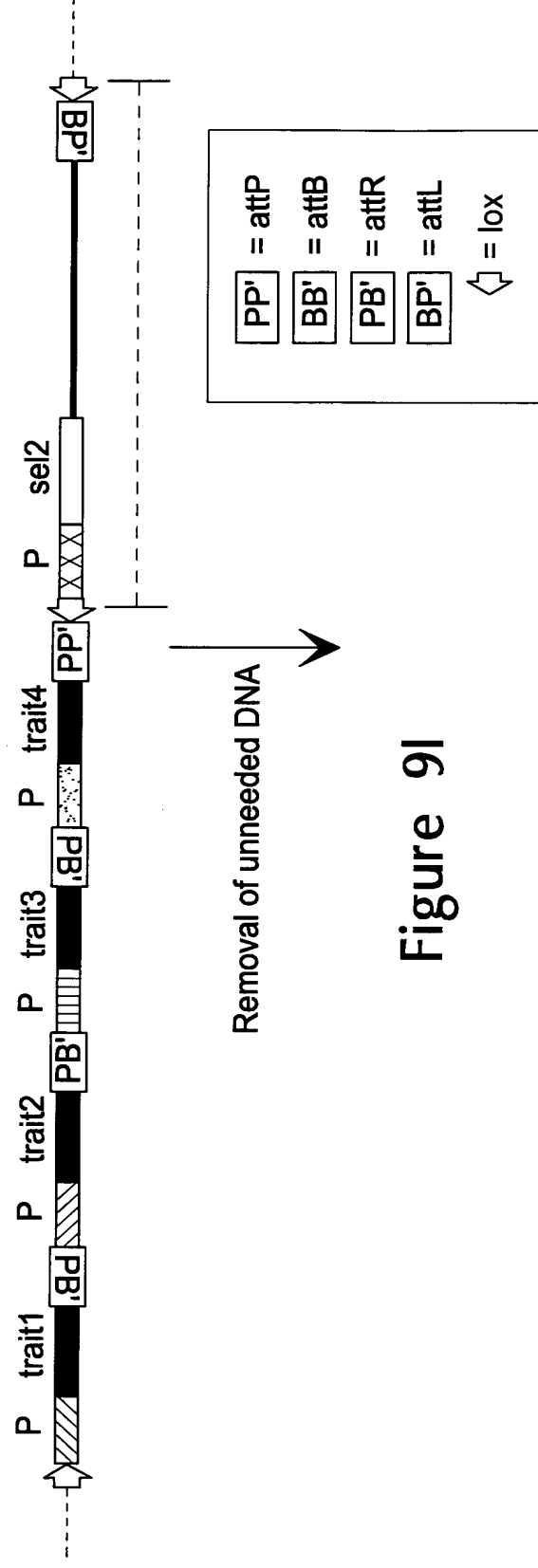


Figure 9I

General strategy to stack genes, part2
Use of inverted sites

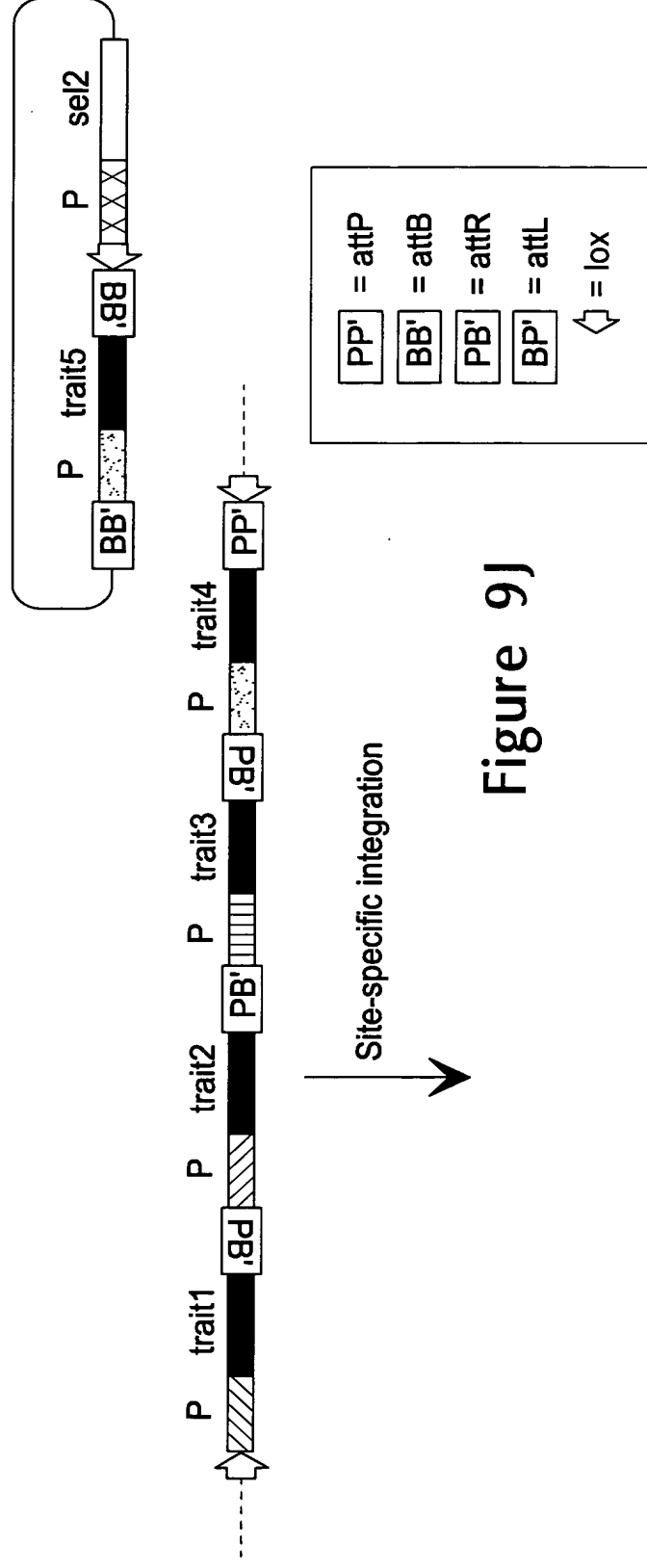


Figure 9J

Gene replacement in the host genome with directly oriented dual sites

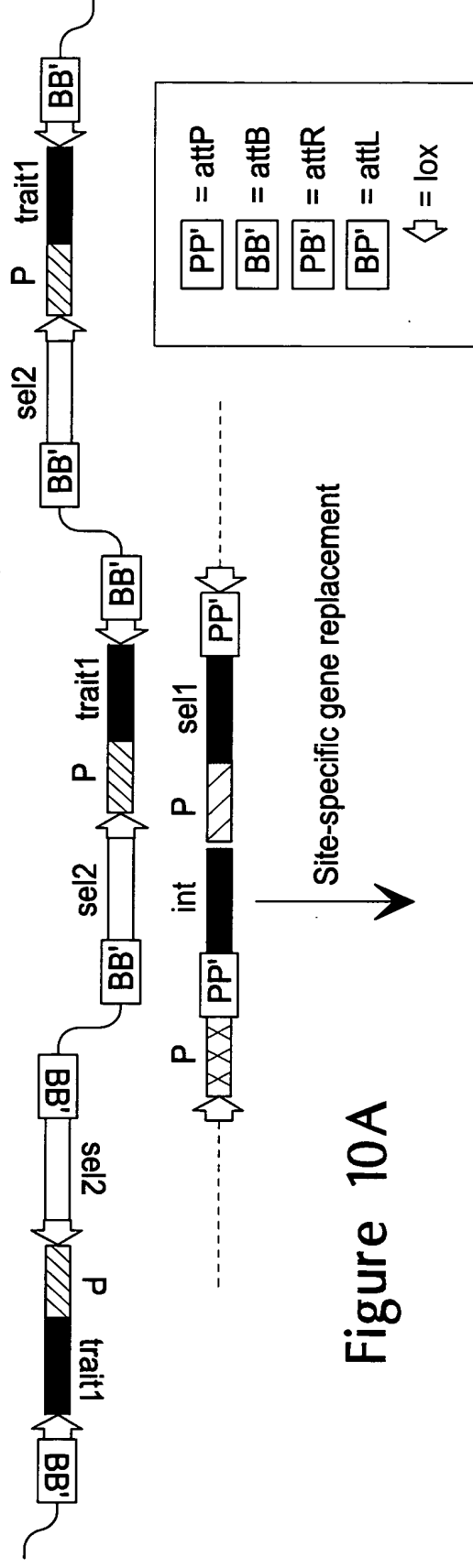


Figure 10A

Gene replacement in the host genome with directly oriented dual sites

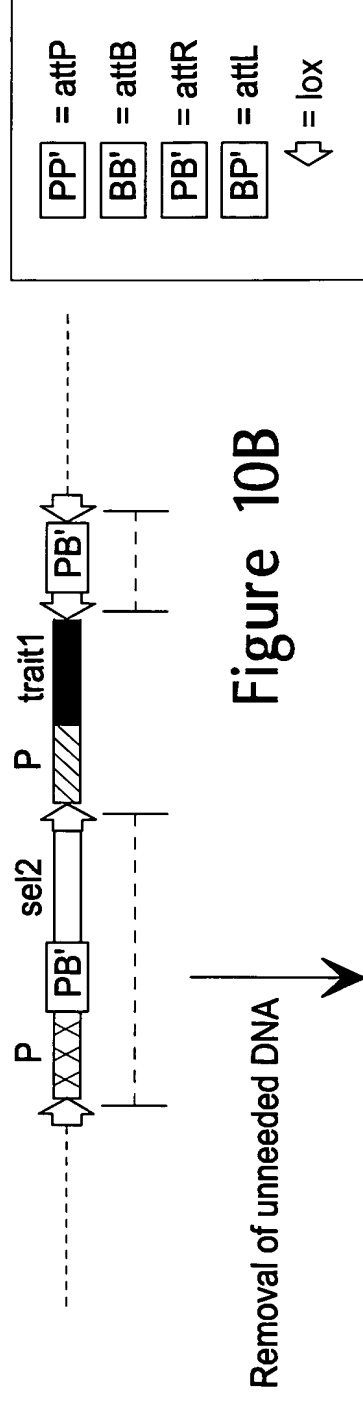


Figure 10B

Gene replacement in the host genome with directly oriented dual sites

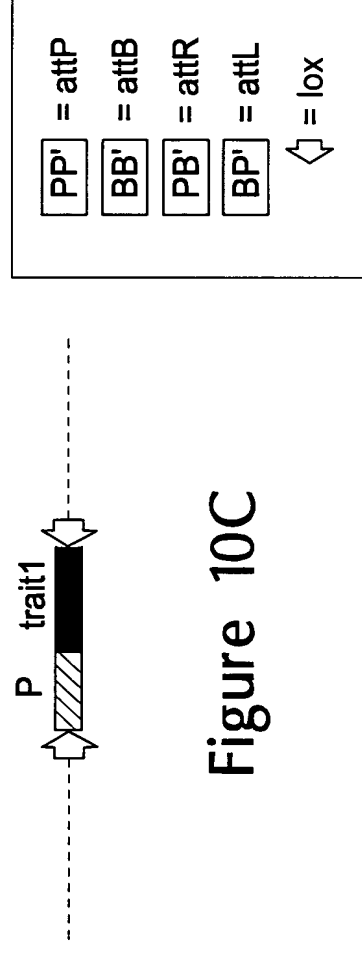


Figure 10C

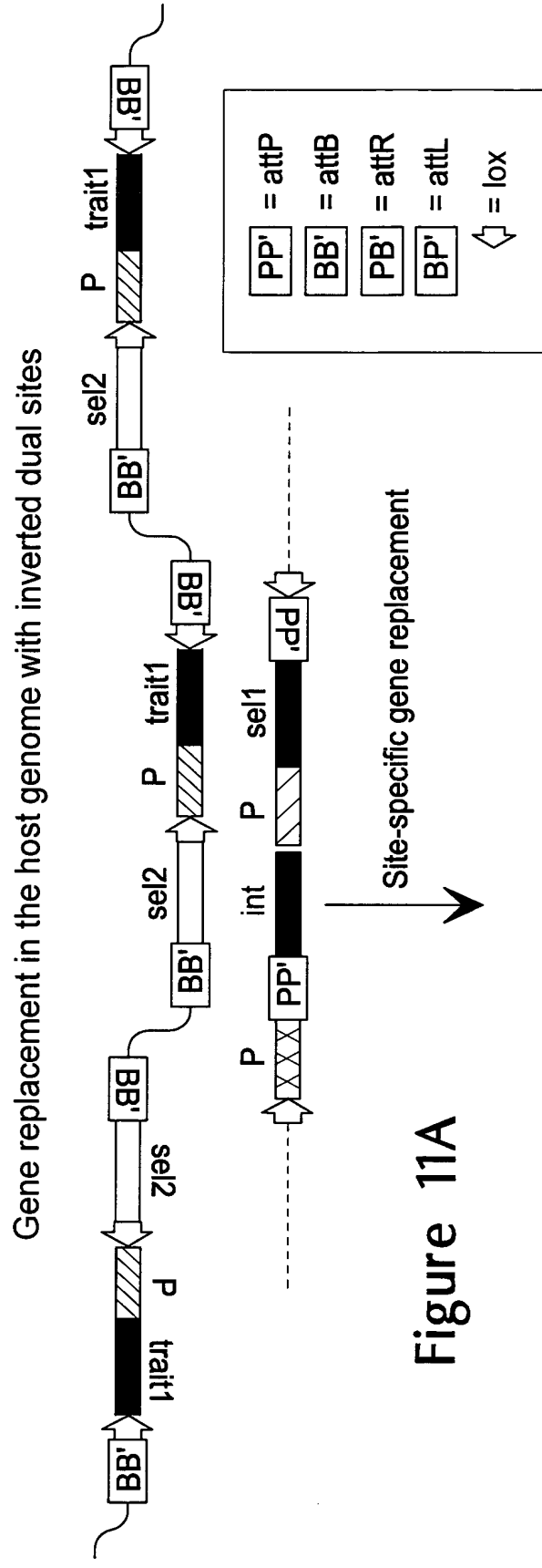


Figure 11A

Gene replacement in the host genome with inverted dual sites

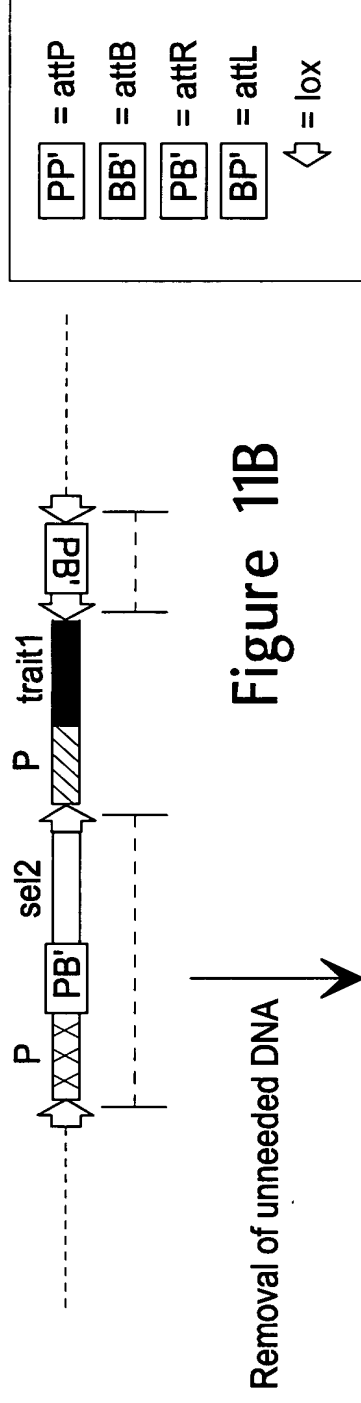


Figure 11B

Gene replacement in the host genome with inverted dual sites

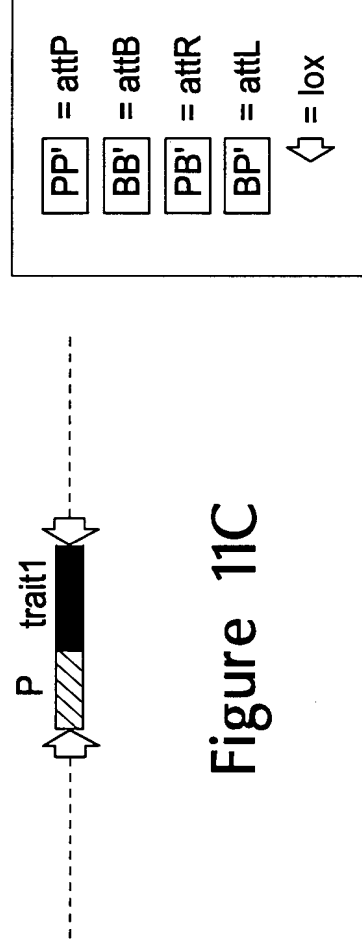


Figure 11C

Transgene translocation from one chromosome to another

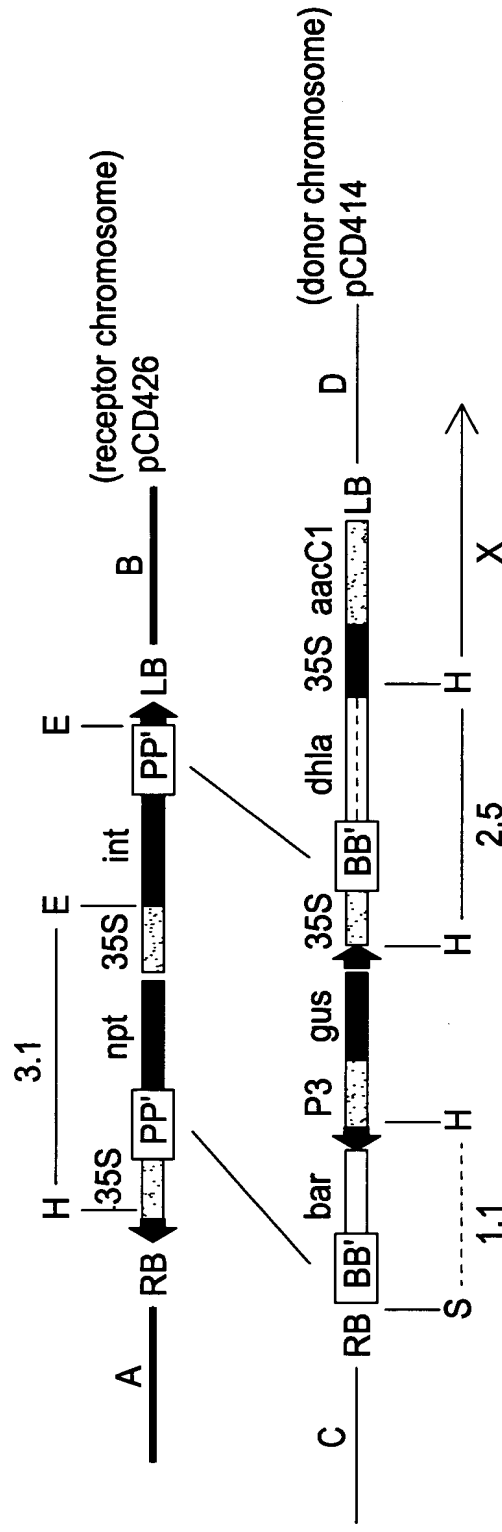
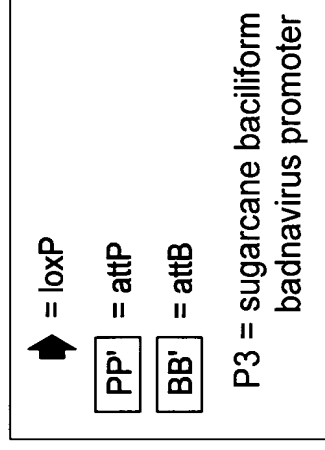


Figure 12A



Transgene translocation from one chromosome to another

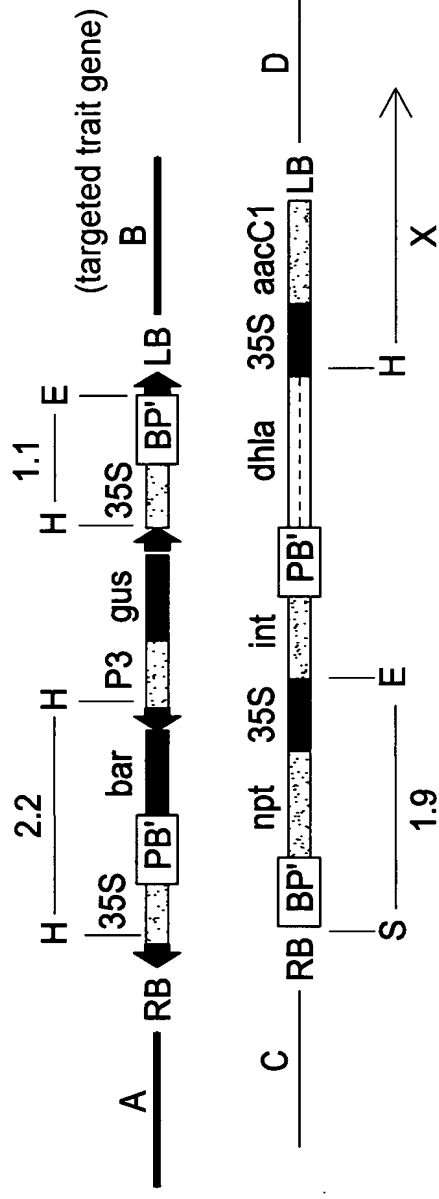


Figure 12B

Transgene translocation from one chromosome to another

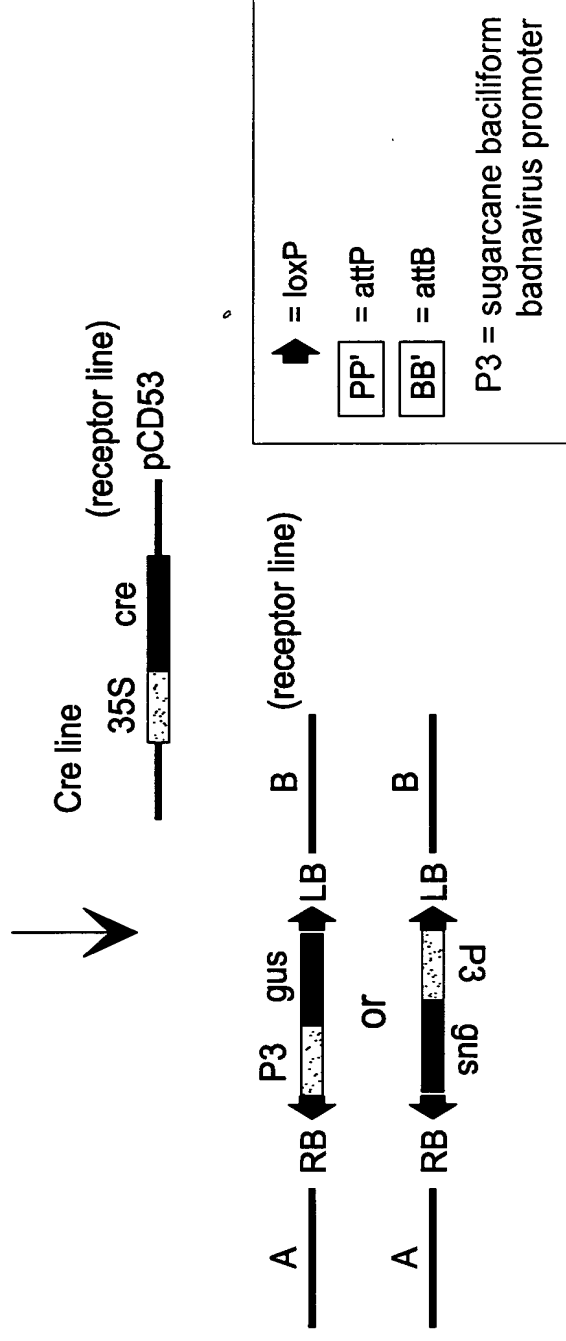


Figure 12C

Transgene translocation using reversible recombination systems

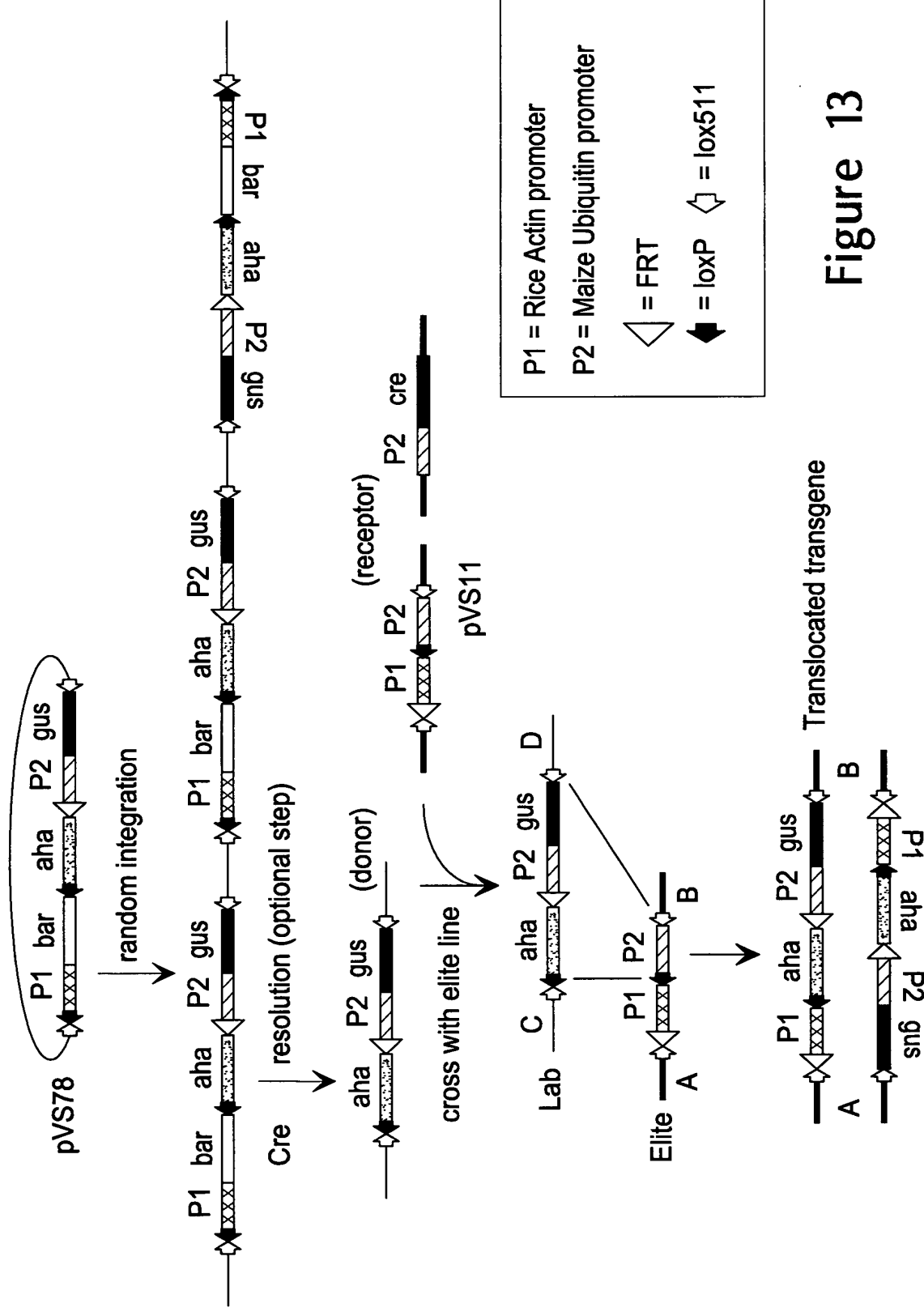


Figure 13